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How technology interacts with emerging adulthood psychosocial developmental tasks: An examination of online self-presentation and cell phone usage

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I am submitting herewith a dissertation written by Samantha Lynn Gray entitled "How technology interacts with emerging adulthood psychosocial developmental tasks: An examination of online self-presentation and cell phone usage." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

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examination of online self-presentation and cell phone usage

A Dissertation Presented for the

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Degree

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Samantha Lynn Gray

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Dedications

Professionally, I dedicate this work to the field of Clinical Psychology. I am honored to be joining a branch of psychology that is not only steeped in tradition, but appropriately progressive and innovative in both research and practice. The integration of these endeavors from my training thus far has informed and guided my work, and I present this dissertation as a demonstration of that integration.

Personally, I dedicate this work to my mom, dad, and husband who have been patiently waiting for the day in which I would be finished with school. I suppose it would be bad timing to mention that I now have to complete a pre-doctoral internship; and I certainly won't ruin this joyous moment by explaining post-doctoral training either. If I have learned anything from the three of them together, it is that living in the moment & cherishing today is extraordinarily important. In one way or another, I have nearly lost each of them. I thank God they are all still in my life, and therefore dedicate this work to them collectively & individually.

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your patience, your cheers from the sideline, and your absolute faith that I would achieve this

goal. I did not do it without you, and I'm happy to report that my journey through graduate

school has successfully ended! WE DID IT!

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ABSTRACT

This dissertation outlines three distinct, yet interrelated, projects aimed at understanding the role of technology in relation to emerging adulthood developmental tasks: individuation & identity development. The first paper provides a context for understanding the developmental tasks of emerging adulthood, and the role that technology may serve in relation to those developmental tasks. This brief review of the literature on emerging adulthood developmental tasks provides a solid theoretical background and history for the theoretical premises proposed for the respective studies included in this dissertation. The second project is an empirical investigation that seeks to understand how the task of identity development may be related to online self-presentation, indicated by rates of profile picture cycling. The third project is a second empirical investigation that seeks to understand how the developmental task of individuation may be related to cell phone communication with parents. Final comments and integrated thoughts are provided to clarify the parallels between what we already know about emerging adulthood tasks, and how these tasks are being manifested via social media outlets and cell phone usage.

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INTRODUCTION

This dissertation outlines three distinct, yet interrelated, projects aimed at understanding the role of technology in relation to emerging adulthood developmental tasks: individuation & identity development. The first paper provides a context for understanding the developmental tasks of emerging adulthood, and the role that technology may serve in relation to those developmental tasks. This brief review of the literature on emerging adulthood developmental tasks provides a solid theoretical background and history for the theoretical premises proposed for the respective studies included in this dissertation. The goal of this paper is to provide both breadth and depth in its review of existing studies which fall under the umbrella of emerging adulthood developmental tasks, and/or the impact of technological processes in communicative exchanges. This paper will also explore possible gender and generational differences that may have emerged regarding developmental tasks in general and technology usage.

The second project is an empirical investigation that seeks to understand how the task of identity development may be related to online self-presentation. More specifically, this study examines the ways in which emerging adults may use the expressive nature of online social media platforms as a catalyst for negotiating identity development. Identity development outcomes (i.e. – identity achievement, foreclosure, moratorium, diffusion, and identity commitment vs. exploration) are assessed as indicators of how emerging adults may use online self-presentation as an opportunity for exploration, and ultimately an indication of their developmental status. It is hypothesized that identity development 'online' will mimic traditional theories of identity development 'offline.' As such, trends are expected to suggest that older participants will show more solidified identities. It is proposed that this identity solidification will be displayed in an online setting by less frequent profile picture cycling in older participants.

The third project is a second empirical investigation that seeks to understand how the developmental task of individuation may be demonstrated via the analysis of cell phone usage. One basic theoretical concept of individuation posits that emerging adults are attempting to establish independence, and begin a life that is separate from parents or primary caregivers. Individuation is a multifaceted construct that examines one's psychological ability to separate, yet remain emotionally connected to parents. For many, the transition to college serves as a functional and distinct marker of individuation. However, with technological advances and the popularity of cell phones, connectivity to parents and old friends may impede upon one's ability to establish a healthy level of separateness. This paper hypothesizes that the developmental task of individuation may not be occurring when overly connected to parents, and that this lack of individuation may thwart positive development. Similar to hypotheses regarding identity development in emerging adulthood, it is expected that trends will show that healthy levels of individuation, as a function of reduced cell phone connectivity, will become more prominent as participants' age increases.

At the conclusion of this dissertation, final comments and integrated thoughts will be provided to clarify the parallels between what we already know about emerging adulthood tasks, and how these tasks are being manifested via social media outlets and cell phone usage. To my knowledge, the applications of these developmental tasks have not been fully examined in relation to these new technologies. It is my hope that the re-examination of these well-established developmental tasks in the context of technological processes opens a new wave of thinking and scientific exploration in this field.

CHAPTER ONE: A BRIEF LITERATURE REVIEW OF EMERGING ADULTHOOD DEVELOPMENTAL TASKS: A CONCEPTUAL FOCUS ON TECHNOLOGY AS A NEW FACTOR TO CONSIDER IN IDENTITY DEVELOPMENT AND INDIVDUATION

ABSTRACT

The goal of this brief, introductory article is to provide a theoretical platform for the examination of how social technologies may interact with the psychosocial development of emerging adults. First, this paper provides a review of the literature relevant to understanding two developmental tasks of emerging adulthood: individuation and identity development. Both tasks are examined from historical and present theoretical conceptualizations; specifically, discussing the shift from the successful resolution of these tasks shifting from adolescence to emerging adulthood. Second, this paper also provides a review of the literature relevant to understanding how two social technologies (i.e. – social networking websites and cell phones) may impact the psychosocial development of emerging adults. The integration of technology into the lives of emerging adults has become the standard, not the exception. Because social technologies have the unique ability to allow individuals to remain seamlessly connected to family and friends, continued research on the ways in which individuals negotiate amounts of connectivity and sharing via these mediums will be important.

INTRODUCTION

Historically, identity development and individuation have been considered key developmental tasks associated with the adolescent age-range (Blos, 1979; Marcia, 1980; Sabatelli & Mazor, 1985). However, many tasks associated with adolescence have been extended into what many researchers are now calling 'emerging adulthood' (Arnett, 2007; Koepke & Denissen, 2012; Tanner, 2006). Emerging adulthood encompasses the college years for many individuals as it is conceptualized to occur between the approximate ages of 18-25 (Arnett, 2000, 2007). Despite theories that the occurrence of these particular developmental tasks are shifting into a later age range, established stage models of development maintain that individuals must still demonstrate mastery over certain life skills in order to successfully transition into another stage (Erikson, 1968).

In general, emerging adults demonstrate mastery, or maturity, in various life areas with increasing age (Greenberger & Sørensen, 1974). Non-integrated theoretical perspectives tend to separate these maturities in their respective categories: biological, psychological, and social (Greenberger & Sørensen, 1974). Behavioral expectations for maturity can be unfairly imposed when only considering one area of maturity – or worse, making assumptions regarding one's level of maturity based off the wrong area of development. For example, assuming that an adolescent is 'mature' enough socially or psychologically to raise a child based on their biological maturity. Although the implications may not be as drastic in regards to another domain, the example illustrates the importance of integrating various areas of development. Erikson's (1968) theory integrated both psychological and social components, and thus was coined a 'psychosocial' model of development.

Among complex models of development, are the complex environments in which individuals live and interact. The interplay between development and environmental context has been a primary area for the field of developmental psychology. Not incorporating various socio-cultural trends may lead to a constricted view and understanding of theoretical models – even ones that have been well established in the literature. Since the mid-1990's, the Western culture has experienced dramatic immersion in the use technology. A 2001 college student sample revealed that almost 100 percent of their study participants were 'online' in some form or fashion (Miller, 2001), and the use of cell phones has now surpassed the use of traditional landlines (R. E. Rice & Katz, 2003). Within a very short amount of time, historically speaking, technology has altered the way in which people communicate, share information, and spend their leisure time.

Since the development of online chat rooms, instant messaging, cell phones, and now social networking websites (e.g. - Facebook, MySpace, LinkedIn, etc.), a flurry of impact research has been conducted by a wide variety of fields, including psychology, sociology, communication, and information technology. Today's highly interactive world of technology has opened up a new door to exploring emotions, cognitions, and behaviors for young adults. This technologically advanced generation, coined 'The Millennials' (Howe & Strauss, 2004), are the first generation to fully incorporate numerous facets of communicative technologies into their lives (Lenhart, Maddenn, & Hitlin, 2005; Oblinger, 2003). As major consumers' of electronic media and mobile technology, emerging adult's use of these technologies as a social tool challenges and encourages researchers to examine the effect these technologies may have on well-established theoretical models of development.

Developmental tasks of emerging adulthood

Identity Development

Despite its growing age, the most widely used conceptual model for understanding identity development is Erikson's life span, psychosocial stage model (1950, 1968). In his model, Erikson theorizes that individuals are required to demonstrate mastery over certain developmental tasks before they may matriculate to the next developmental task. Erikson believed that identity development was the critical task that adolescents faced, and a lack of achievement in this area would lead to identity confusion (Erikson, 1950, 1968; Kroger, 2000). Adding clarification to the model, he later theorized that the resolution of this stage would result in a fully integrated and coherent sense of self (Erikson, 1974). Erikson accounted for the social component of identity development in his model by proposing that a fully integrated identity was solidified once the individual was able to begin to construct an ego that provided some degree of continuity that others recognized (Erikson, 1968; Greenberger & Sørensen, 1974). Essentially, a healthy amount of personal ego strength must be readily available to the individual as a prerequisite (Waterman, 1982). This ego strength allows an individual to demonstrate "stable and predictable" patterns of behavior over time and situation (Greenberger & Sørensen, 1974) in the presence of others.

Although much of Erikson's model was not focused on the degree to which receiver information (evaluations from others) was important for identity development, he made it clear that identity development occurred not only within the individual intra-psychically, but was contingent upon interactions within one's social environment (Erikson, 1968; McAdams, 2001; Schwartz, 2001). Research has shown that intra-psychic tension, and cognitive dissonance

between self-concept and evaluations of others, may serve as initiators of the identity development process (Bosma & Kunnen, 2001; Kerpelman, Pittman, & Lamke, 1997). It has been proposed that identity systems are activated when an individual's current self-view is somehow disturbed along the path towards separation-individuation (mostly from parents), and the desire to socially integrate with peers (Kerpelman et al., 1997; Koepke & Denissen, 2012). In an attempt to abate the disruption, or intrapersonal conflict, individuals must assimilate or accommodate new identity information by creatively integrating and/or negotiating personal values, goals, and beliefs (Whitbourne, Sneed, & Skultety, 2002). Developmental research on self-concept suggests that individuals move from conceptualizing themselves based on external factors such as possessions, their physical body, and citizenship (or identification with where one lives), to more complex internal factors such as personal judgment, beliefs, values, and individual life goals (Montemayor & Eisen, 1977).

The way in which individuals transition into more complex internal working models has been proposed to develop in numerous ways. Specifically, within the identity development body of literature, many researchers began to make meaningful connections between identity development and one's immediate "micro-social" environment (e.g., one's relationship with and feedback from parents; (Grotevant & Cooper, 1985; McAdams, 2001; Schachter & Ventura, 2008; Weinmann & Newcombe, 1990). Because a child's micro-social environment is almost exclusively made up of their interactions with parents, research has suggested that these childhood experiences with parents become integrated in a formative manner (Bartholomew & Horowitz, 1991; Koepke & Denissen, 2012; Lichtwarck-Aschoff, van Geert, Bosma, & Kunnen, 2008; Luyckx, Soenens, Vansteenkiste, Goossens, & Berzonsky, 2007). One way that these

formations of parent-child interactions are examined is through measuring an individual's resulting attachment style to their parents.

It has been shown that attachment style to parents is associated with identity development (Årseth, Kroger, Martinussen, & Marcia, 2009; Kroger & Haslett, 1988; Meeus & de Wied, 2007; Reich & Siegel, 2002; Schultheiss & Blustein, 1994; Weinmann & Newcombe, 1990). For example, in a meta-analysis on identity development and attachment, Arseth and colleagues (2009) found that there was a small to moderate association between identity and attachment. However, they noted that the relationship was much stronger between the secure attachment style and the achieved identity status (Årseth et al., 2009). Being that an achieved identity status is the ultimate goal for successful resolution of this stage (Luyckx et al., 2008), Arseth and colleagues' finding fits with Ainsworth's (1978) theory that individuals with secure attachment styles are more likely to achieve developmental milestones with more ease than non-secure individuals. However, attachment style to parents is not the only factor at play in identity development.

In addition to parents, evaluations from peers become especially important during the late adolescent and emerging adulthood age ranges. Expression within and between peer groups are considered a conduit for identity development (Mazalin & Moore, 2004). As emerging adults individuate and demonstrate autonomy from parental figures, peer groups become an essential source of social comparison and feedback for identity development (Newman & Newman, 1976). Specially, individuals use peer social comparisons to establish positive self-evaluations, and ultimately a positive identity; thus, making the argument that identity development is at least partially realized through social comparisons (Tarrant, 2002).

Social appraisals from friends and family tend to inspire emotional responses from individuals, which illustrates the conceptualization of identity development as a dynamic system spurred by interactions and relationships (Bosma & Kunnen, 2001). Dynamic systems identity researchers argue that identity development stems from emotional exchanges and relationships (Koepke & Denissen, 2012). These exchanges are argued to occur within the individual's personal social environment on a daily basis. According to Bosma & Kunnen (2001), social transactions, such as feedback from others and/or internal emotional reactions & interpretations, encourage the development of positive cognitive schemas and a solidified sense of identity.

As an extension of Erikson's work, Marcia (1966, 1980) sought to empirically operationalize identity development in terms of "identity statuses." First, Marcia detailed two dimensions of identity development: exploration & commitment (Kroger, 2000; Marcia, 1966). Exploration entailed engaging in active consideration of possible identities; whereas commitment entailed adhering to a solidified 'identity set' (which may include one's values, goals, beliefs, etc.) Under the umbrella of those two dimensions, he further proposed that individuals were in one of four identity statuses: achievement, diffusion, moratorium, or foreclosure (Marcia, 1966). The status category that an individual falls within can be dependent upon factors such as motivation to explore their own beliefs/values/social expectations, or lack of comfort / desire to explore an identity (Koepke & Denissen, 2012). Despite the reasoning behind an individual's motivation (or lack thereof), Marcia's four subcategories represent the individual's varying levels of exploration or commitment (Kroger, 2000).

Research has shown that individuals move from less mature identity statuses (foreclosure, diffusion) towards more mature identity statuses (moratorium, achievement; (Akers, Jones, & Coyl, 1998). The optimal status to be reached at some point during emerging adulthood is

'achievement' (Luyckx et al., 2008). In spite of this goal, it has been suggested that upwards of

50% of college seniors remain in a state of identity diffusion or foreclosure (Kroger, 2000).

Individuals who have an achievement identity status have engaged in the process of identity

exploration, and have ultimately solidified a stable identity. Those who remain in the active stage

of identity exploration are considered to be in the 'moratorium' stage. Developmentally, this is

considered a 'healthy' stage for most adolescents and emerging adults who have not yet fully

committed to an identity (Luyckx, Goossens, Soenens, & Beyers, 2006). Those who have

'settled' on an identity with very little self-directed exploration are considered to be in the

'foreclosure' status. These individuals are likely to be described as 'followers,' and tend to

conform in an attempt to experience the least amount of psychosocial distress. Finally, the

'diffused' status is indicative of persons who have not made any identity commitments, or

attempts to engage in identity exploration (Luyckx, Goossens, & Soenens, 2006; Luyckx,

Goossens, Soenens, et al., 2006; Luyckx et al., 2008; Luyckx, Soenens, & Vansteenkiste, 2005).

Individuation

Although identity exploration is extremely important in terms of emerging adulthood

development, the process of individuation is arguably just as important, if not more so.

Individuation is a multifaceted construct that examines one's psychological capability to function

autonomously, while remaining emotionally close (Allison & Sabatelli, 1988; Grotevant &

Cooper, 1986; Hoffman, 1984). Previous research has shown the developmental importance of

individuation during the college years (Kenyon & Koerner, 2009; Tinto, 1988, 1997), as that

timeframe provides a functional marker of individuation. Despite its distinct features as an

independent construct, numerous studies have shown that individuation (including associated

terms such as: agency and autonomy) is highly related to identity development in a predictive

fashion (Beyers & Goossens, 2008; Cote & Schwartz, 2002; Koepke & Denissen, 2012; Luyckx, Goossens, Soenens, et al., 2006; Luyckx et al., 2007; Schwartz, Côté, & Arnett, 2005). Though structural equation modeling, one of those studies found that 'agency' was positively associated with identity development (Schwartz et al., 2005). Specifically, they described individuals who demonstrate responsibility and/or are generally in charge of their own decision-making as being more 'agentic' in nature, which in turn can promote identity development and individuation from parents (Côté & Levine, 2002; Schwartz et al., 2005). In a related study, agency was found to mediate the existing relationship between supportive parenting and identity development (Soenens & Vansteenkiste, 2005). Similarly, Mattanah, Hancock, and Brand (2004) found that students' feelings of autonomy mediated the relationship between parental attachment and college adjustment, demonstrating the importance of individuation and agency as constructs with practical, real-life implications. Thus, the literature has established individuation, and/or being more autonomous, as a developmental milestone that can significantly affect the lives of young adults.

To understand why individuation and autonomy are so significant in the lives of young adults, an examination of core psychological processes may be helpful. Agentic personalities are said to be made up of various traits such as increased ego-strength, self-esteem, and openness to experience (Cote, 1997; Grotevant, 1987). These traits encourage individuals to feel comfortable engaging in self-exploration. In addition to agentic personality styles, the literature on parental attachment suggests that individuals with a more secure parental attachment are afforded the ability to autonomously explore their environment more so than individuals who are less securely attached (Bowlby, 1988; Kenny, 1987; Lopez & Gover, 1993). Ainsworth (1989) defined attachment as an affectional bond between individuals. Some researchers have theorized

that attachment structures are most likely activated during developmental transitions, as primary attachment structures provide individuals a source of continued emotional support during challenging or novel life stages (Bowlby, 1982, 1988; Sroufe, 1979).

In terms of an individual's path toward individuation from their parents, Koepke & Denissen (2012) highlight that optimal development occurs when parents are able to differentiate their own desires from what might be best for their child. Additionally, parent-child relationship experts also propose that optimal development would also occur within adolescents whose parents are able to provide appropriate boundaries that would permit the child to continue safely on their path towards individuation (Adams & Marshall, 1996; Schachter & Ventura, 2008; Smetana, 1995). It can be initially difficult even for well-meaning parents to be flexible in their receptions of their children's new found time of individuation and exploration (Joseph P Allen, Hauser, Bell, & O'Connor, 1994; Collins, Laursen, Mortensen, Luebker, & Ferreira, 1997; Smetana & Asquith, 1994), as adolescents transitioning into adulthood is a developmental major shift for both the parent and the child. The literature on "separation-individuation" suggests that negotiating the desire to distance oneself from parents, yet remain psychologically connected can stir up mixed emotions for both parents and children (Grotevant & Cooper, 1986; Smollar & Youniss, 1989). Current theory in developmental literature suggests that instead of engaging in complete detachment from parents (Beyers, Goossens, Vansant, & Moors, 2003; Frank, Avery, & Laman, 1988), finding a balance between separation-individuation and emotional closeness is key (Gentzler, Oberhauser, Westerman, & Nadorff, 2011; Grotevant & Cooper, 1986; Smollar & Youniss, 1989). Focusing on the relational aspect of individuation, another basic theoretical premise surrounds one's ability to manage their anxieties surrounding separation issues (Allison & Sabatelli, 1988; Levine, Green, & Millon, 1986). The construct of individuation has been

described as "multifaceted" because it encompasses one's psychological ability to emotionally 'separate' and 'connect,' along with more functional indices of separateness (e.g., autonomy; (Hoffman, 1984). Overall, one's ability and emotional readiness to individuate from parents appears to serve an important role for emerging adults facing difficult or novel experiences.

Despite the shifting dynamics that occur between parents and their children during the transition to adulthood, the process is not always excessively troubled. Previous literature on 'adolescent storm & stress' conceptualized the transition to adulthood as a time of extreme internal (i.e., emotional) and external (i.e., behavioral) conflict (Freud, 1969; Hall, 1904). More balanced conceptualizations of 'storm and stress' have been proposed, allowing for the understanding that adolescence can indeed be characterized by quarrelsome relationships with parents, mood fluctuations, and increased involvement in risky behaviors (Arnett, 1999). However, many parents actually show greater flexibility during their child's transition into emerging adulthood if a certain level of trust (produced from repetitive demonstrations of responsibility) is already established (Collins et al., 1997; Koepke & Denissen, 2012; Smetana, 1995; Smetana & Asquith, 1994). Although many individuals will transition through developmental phases without a great deal of 'storm & stress', some researchers highlight that a minimal amount of conflict between adolescents and parents may be beneficial because it promotes the adolescents desire to be autonomous, and spurs the process of individuation (Steinberg, 1990).

It has been argued that the basic developmental task of individuation which has historically been associated with late adolescence (approximately 16-18 years old), has shifted into the emerging adulthood age range (approximately 18-25; (Arnett, 2000, 2007) as the transition into adulthood continues to be prolonged (Tanner, 2006). This finding is generally

associated with the fact that more adolescents are delaying traditional markers of adulthood (such as: entering the workforce, getting married, and having children), and instead are taking time to obtain college educations (Arnett & Taber, 1994; Gitelson & McDermott, 2006). This affords many adolescents the opportunity to take more time solidifying an identity, and may delay individuation from parents – especially if their parents are financially responsible for their college education (Cohen, Kasen, Chen, Hartmark, & Gordon, 2003; Kins, Beyers, & Soenens, 2012).

Another practical explanation for individuation occurring within emerging adulthood is simply the fact that, despite their best efforts, adolescents cannot fully assert autonomy from parents when living under their 'parent's roof' (Koepke & Denissen, 2012). Many adolescents also still face social limits that may prevent them from legally exerting their free-will to engage in certain behaviors (e.g. – drinking, smoking). Because of these various factors, adolescents may try to demonstrate individuation on a purely cognitive or emotional level – such that they begin to de-idealize their parents and limit the sharing of personal information (Mazor & Enright, 1988; Smollar & Youniss, 1989). This limited sharing of intimate material likely manifests itself as emotional detachment (Joseph P. Allen, Hauser, O'Connor, Bell, & Eickholt, 1996; Ingoglia, Coco, Liga, & Cricchio, 2011). When balances between closeness and separation cannot be negotiated, possibly due to constant conflict or lack of flexibility, emotional detachment and high levels of separateness are likely to occur (Joseph P. Allen et al., 1996).

A focus on Technology

Historically, the ability to remain emotionally connected, while simultaneously establishing a degree of independence & separateness has generally been a challenging

developmental milestone for many individuals. Today, modern technology permits and social norms encourage, constant connectivity between family, friends, and colleagues. Due to our ability to remain electronically 'wired,' it will be interesting to examine how young adults manage developmental tasks that are directly related to online social experiences (e.g., identity development) and levels of communication (e.g., individuation). Technology, especially mobile phone and social media technologies, has the unique ability to facilitate connectivity and interactivity in a way that was simply not possible for previous generations (Oblinger, 2003).

Mobile phone and social media technologies have especially changed the way that people connect with each other. The Pew Research Center, an organization dedicated to reporting current trends in technology, provides some insight into both cell phone and social networking website trends among young adults (Lenhart, Purcell, Smith, & Zickuhr, 2010). In 2010, it was reported that 93% of adults between 18-29 years of age own a cell phone, along with 75% of teenagers. One of the largest jumps in cell phone ownership was among 12-year olds, up from 18% in 2004 to 58% in 2009, demonstrating the continued integration of cell phones into people's daily lives – even at a young age. The report also details that social networking website usage has increased dramatically, as many individuals shifted from online 'blogging' to maintaining pages with popular websites like Facebook. Specific to young adults, Lenhart and colleagues (2010) report that, "Young adults act much like teens in their tendency to use these sites." With nearly identical usage percentages, 73% of teens and 72% of young adults between 18-29 years of age use social networking websites (Lenhart et al., 2010). Because the vast majority of individuals now have the ability to remain constantly connected, individuals who do not have a cell phone or a Facebook page may feel socially isolated (Auter, 2007; Raynes-Goldie, 2010).

Prior to the growth in popularity among using cell phones and social networking websites to stay connected, Baumeister and Leary (1995) discussed the social ramifications of having access to regular, positively reinforcing contact with peers. Specifically, a positive association between amount of contact and feelings of satisfaction regarding one's need for belongingness was reported. Others have reported that increased levels of family connectedness appear to play a protective role in terms of resilience among young adults (Fergus & Zimmerman, 2005). Both positive reinforcement and connectedness (perceived or actual) are constructs that can be experienced through technology. In general, it is likely that most individuals attempt to use technology in ways that make the experience positively reinforcing, or rewarding (Lin & Lu, 2011).

Social Networking & Development

As detailed above, we now understand that a significant amount of identity development is driven by information obtained from social interchanges (Erikson, 1994; Mazalin & Moore, 2004; Newman & Newman, 1976). Previous research on peer interactions and identity development has largely focused on the substantial amount of time that adolescents and emerging adults physically spend with their friends (Coleman, 1999; Hendry, 1983; Palmonari, Pombeni, & Kirchler, 1990; Tarrant, 2002). With social media and other various technologies, obtaining social feedback no longer requires a physical or even a 'live' presence (e.g., instant messaging in 'chat' rooms). Social networking websites allow individuals to leave a collection of personalized data (i.e., thoughts, opinions, pictures, music, etc.) for others to view and/or provide feedback at their leisure. These types of social appraisals are available to young adults at an instant, and do not require physical presence nor time collaboration, making them quite appealing for on-the-go young adults.

An article by McMillan & Morrison (2006) highlights qualitative comments on the integration of internet use into student's daily lives. One main theme that emerged involved the acceptance of being 'dependent' on the internet, and relying on the communicative advantages it provides for maintaining contact with their friends & family. Many individuals bridge their 'offline' social life and relationships with their 'online' lives, as though their online experiences are simply an extension of their offline experiences (Baym, 2006; Gross, Juvonen, & Gable, 2002; Mcmillan & Morrison, 2006). Not surprisingly, individual's offline personalities and pathologies can also extend into one's online social "persona" (Buffardi & Campbell, 2008; DeWall, Buffardi, Bonser, & Keith Campbell, 2011; Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011 ; Kramer & Winter, 2008).

Cell Phone Communication & Development

Research suggests that mobile devices relieve the constraints of physical proximity; and further explains that with the mobility afforded by cell phones, levels of communication are increased (Auter, 2007; Quan-Haase, 2007; Thulin & Vilhelmson, 2007). The cell phone has been described as a, "metaphorical umbilical cord," suggesting the maintenance of a tethered relationship between parent and child (Ling & Yttri, 2006). It has been established that one's ability to demonstrate healthy levels of individuation is driven by establishing a sense of autonomy & separateness, while ensuring that a degree of emotional connectedness remains intact. As detailed above, when balances between closeness and separateness cannot be negotiated in a healthy manner, emotional detachment and high levels of separateness are likely to occur (Joseph P. Allen et al., 1996; Beyers et al., 2003). However, even given this bleak outcome, a study by Gray & colleagues (unpublished manuscript) examining cell phone connectivity among first-year college students, demonstrated that this combination of emotional

detachment (quantified as low parent attachment scores) and high levels of separateness (quantified by low levels of communication) did not negatively affect emerging adults' academic performance during their transition to college. Overall, this suggests that individuals who ultimately demonstrate maladaptive patterns of individuation, separateness, and emotional detachment may have better outcomes with limited levels of communication.

For practical purposes, such as shielding academic performance, we understand that limiting levels of communication emerging adults have with their parents may be beneficial (Braguglia, 2011). The limiting of communication should not be understood as a purposeful attempt to 'disconnect' from parents. Previous research explains that it is ideal for individuals facing developmental tasks to be able to maintain a high level of emotional closeness with their parents, rather than completely disengaging (Bowlby, 1982, 1988; Gentzler et al., 2011; Grotevant & Cooper, 1986; Smollar & Youniss, 1989; Sroufe, 1979).

For some families, cell phones may be an ideal tool for maintaining emotional closeness, rather than a device that enables parent-child dyads to simply continue engaging in high levels of connectivity (which may negate the separation-individuation process). In a study assessing parents and college student perceptions of cell phone use, it was reported that cell phone communication facilitated feelings of emotional closeness and provided sense a reassurance & safety (Green, 2007). However, participants in the study also reported that the instant access afforded by cell phone technology was also problematic for establishing boundaries and independence.

Additional factors related to technology & development

Although findings on technology use in relation to gender are mixed, newest trends suggest that the current generation demonstrates more gender neutrality regarding technology use. Previous gender-specific beliefs surrounding internet usage are beginning to diminish in predictive power. Stereotypical assumptions that males typically engage in gaming online, while girls spend more time in chat rooms or shopping online are beginning to fade. Rather, it appears as though males and females use of technology is becoming more similar (Gross, 2004). No gender differences were associated with motivations behind the use of social networking websites (e.g., commonly utilized to social with friends; (Raacke & Bonds-Raacke, 2008). This finding was also generally supported by recent analyses of usage among various types of technology. For example, no major gender differences among young adults were noted in online content sharing, virtual world gaming, engaging in blog discussions, or in consuming online news. However, the same report noted some gender differences regarding social networking website selection. Specifically, men are 8% more likely to maintain a profile on LinkedIn (a professionally-focused social networking website), while women are 10% more likely to maintain a profile on Facebook (Lenhart et al., 2010).

The relationship between age and technology usage appears to be more direct. To illustrate associations between increased comfort with technology and younger generations, a study which examined age and personality is reviewed. It appears that increased levels of technology usage were related to extraversion for younger individuals; whereas openness to experience demonstrated more predictive power than extraversion for older individuals (Correa, Hinsley, & de Zúñiga, 2010). These findings demonstrate that certain personality traits such as openness to experience are not especially related to younger adult's technology usage

specifically, however they capture a unique generational difference when a wider age range is analyzed. These personality trait differences regarding age and technology may be related to the growing commonplace of technology among younger users. Thus, individuals no longer need to inherently high on the 'openness to experience' trait to engage in high levels of technology usage. Today, the incorporation of technology into the daily lives of young adults is not contingent upon the person's general willingness to try experience novel things. This trend is likely due to pervasiveness of technology into the lives of this generation of 'Millennials.'

The impact of new technologies on the development of young people will be an area of continued interest as the use of various technologies becomes even more commonplace. It has become difficult to meet someone (especially an adolescent or emerging adult) who does not own a cell phone, or is not a member of an online social networking website. The integration of technology into the lives of emerging adults has become the standard, not the exception. The abilities to remain seamlessly connected to family and immediately share personal content with friends are just two examples of experiences available to emerging adults that may have a direct impact on their psychosocial development. In some aspects, technology has removed the limits of communicative and social exchanges. Regardless of the time of day, or even one's physical location, individuals have the ability to gain immediate access to their friends and family. As new communicative technologies continue to be developed, it will be interesting to explore the ways in which emerging adults negotiate the amount of connectivity & sharing they engage in with friends and family. It is without question that technology has become an integral aspect of emerging adults' lives. The question that remains is: 'How does that technology affect or interact with emerging adult's psychosocial development?'

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CHAPTER TWO: STUDY 1: ONLINE SELF-PRESENTATION DURING EMERGING

ADULTHOOD: IDENTITY EXPLORATION VIA PROFILE PICTURE CYCLING

ABSTRACT

Current developmental theory suggests that identity development has extended from adolescence into the emerging adulthood years. Based on established theories of identity development in the context of social exchanges, this project explored the ways in which identity may interact with emerging adults' use of a social networking website (i.e. – Facebook). Specifically, the relationship between online self-presentation via profile pictures and identity development was examined. Administered online with a variety of accompanying measures, this study required participants to log into their Facebook accounts to report concrete data from their profile. The study sample included 18 to 25-year-old emerging adults (N=428), indicating Midwest, Southeast, and West coast geographic locations. Several findings on the interactions between age, profile pictures, personality, and identity status are presented. Although study effect sizes were minimal, the findings provide a platform for further exploration into the relationship between social technologies and identity development.

INTRODUCTION

The developmental tasks associated with emerging adulthood can be emotionally demanding for some individuals. Peer groups are an ideal source of social support, and frequently serve as a place of refuge when individuals are seeking a sense of belonging (Gavin & Furman, 1989; Jackson & Bosma, 1992; Palmonari, Pombeni, & Kirchler, 1989; Palmonari et al., 1990). When individuals have access to regular, positively reinforcing contact with peers, this need for belonging is satisfied (Baumeister & Leary, 1995). Today, individuals are able to have constant, 24-hour access to their friends and family via social networking websites. The Pew Research Center, an organization dedicated to reporting current trends in technology, provides some insight into social networking website trends among emerging adults (Lenhart et al., 2010). Their report details that social networking website usage has increased dramatically, as many individuals shifted from online 'blogging' to maintaining pages with popular websites like Facebook. Specific to emerging adults, Lenhart and colleagues (2010) report that, "Young adults act much like teens in their tendency to use these sites." With nearly identical usage percentages, 73% of 'teens' and 72% of 'young adult's between 18-29 years of age use social networking websites (Lenhart et al., 2010).

Existing research has shown that adolescents and emerging adults tend to use online social networking websites to bolster their existing offline relationships (Pempek, Yermolayeva, & Calvert, 2009; Subrahmanyam, Reich, Waechter, & Espinoza, 2008). One study reported that people generally use social networking websites because they experience them as highly enjoyable and positively reinforcing (Lin & Lu, 2011). Thus, it is feasible that positively reinforcing contact individuals receive through social networking websites (Lin & Lu, 2011) may help satisfy the need for belonging discussed by Baumeister & Leary (1995).

The aim of this empirical investigation is to understand how the developmental task of identity formation may be related to online self-presentation. More specifically, this study examines the ways in which emerging adults may use the expressive nature of online social media platforms as a catalyst for negotiating identity development. Identity development outcomes are assessed by continuous variables (i.e., exploration vs. commitment), and categorical variables (i.e., identity achievement, foreclosure, moratorium, diffusion) as indicators of how emerging adults may use online self-presentation as an opportunity for exploration, and ultimately an indication of their developmental status (for a comprehensive review of identity development, see Chapter 1 of this dissertation). It is hypothesized that identity development 'online' will mimic traditional theories of identity development 'offline.' As such, trends are expected to demonstrate that older participants will show more solidified identities. It is proposed that this identity solidification will be displayed in an online setting by less frequent profile picture cycling in older participants.

Online self-presentation

Arguably by design, social networking websites function as a tool in which individuals can engage in the act of impression management. Outside of postings from friends, the content displayed on an individual's social networking webpage (which is termed a 'Wall' on Facebook) is completely user-driven. This permits individuals the freedom and flexibility to individualize their page. For example, users can individualize their wall by posting various status updates, sharing content (e.g., news stories, funny cartoons, political agendas, etc.), and uploading pictures. Ultimately, this allows individuals the ability to demonstrate a great deal of control over what they want to put on display for others to view.

The functionality and purpose of a user's Facebook 'Wall' demonstrates remarkable parallels to Goffman's (1959) theoretical position that an individual's life was composed of a compilation of "performances," in which people attempted to manage their self-presentation by making clear divisions between what they wanted their audience to see and/or know about them. Although Goffman was obviously not referring to an individual's online behaviors, the similarities to his early conceptualizations of self-presentation in general are quite relevant to online self-presentation. His conceptualizations of "implicit" expressions are also highly relatable to online identity construction. Implicit expressions are primarily "given off" through visual communication, whereas explicit expressions are generally offered through the verbal communication that people "give" in a more direct manner (Goffman, 1959). Translated to the Facebook experience, an "explicit" expression might be information provided in a user's "About Me" section, or even overt content written in a status update; while "implicit" expressions might be more subtle statements about the self. It has been proposed that a user's profile picture can be understood as an "implicit" identity indicator, suggesting that images are representative of personal characteristics that users want to express (Zhao, Grasmuck, & Martin, 2008). These implicit identity indicators also included much of the content users "share" on their Facebook Wall, which usually suggests that the individual aligns themselves in some way with the content. For example, if a user shares a gospel song, they are likely identifying themselves to be a spiritual or religious person in an implicit manner (Hum et al., 2011; Strano, 2008). The overall idea behind the displaying of identity in an implicit manner being that it is much more dynamic for users to "show" who they are, rather than "tell" (Zhao et al., 2008).

It has been argued that the profile picture is the singular, most direct online representation of one's identity (Strano, 2008). Through qualitative content analysis, this research demonstrated

that the profile picture essentially acts as a virtual "stand in," and acts as the primary agent in online self-presentation. The study further details the importance of the profile picture by highlighting the many instances in which one's profile picture is displayed (e.g., public searches, next to all user posts/messages, etc.; Strano, 2008). Because users are the architects of their own online content, the resulting self-expression can equate to feelings of mastery and identity exploration (Schmitt, Dayanim, & Matthias, 2008).

Not surprisingly, individual's offline personalities and pathologies can extend into one's online social presentation, which some researchers refer to as an online "persona" (Gosling et al., 2011). For example, among the Big Five personality traits (Extraversion, Neuroticism, Conscientiousness, Agreeableness, Openness), extraversion predicted frequency of Facebook usage and also engagement in the site, leaving a "behavioral residue" of friends lists and picture postings (Gosling, Augustine, Vazire, Holtzman & Gaddis, 2011). Conversely, people who were more introverted tended to prefer online communication although they still show less usage of social networking sites than those who are extraverted. Additionally, more introverted individuals were also less likely to reveal personal information than extravert profiles (Kramer & Winter, 2008). Closely related to the personality findings, some research indicates that narcissism was associated with high levels of social activity on social networking sites, and the public display of more sexually suggestive material (Buffardi & Campbell, 2008; DeWall et al., 2011). Taken together, these findings indicate that people largely represent their true nature, albeit overtly or covertly, in online social settings.

STUDY RATIONALE

Some studies which have looked at identity development on Facebook have focused on capturing entire webpage content (e.g. – wall posts, status updates, photo albums, etc.), and

generally utilize qualitative content analysis techniques (Strano, 2008; Zhao et al., 2008).

Previously, researchers have examined profile pictures independently in relation to identity

development. While much of the literature is qualitative, some projects examine profile pictures

by analyzing an individual's profile pictures sums (Hum et al., 2011; Zhao et al., 2008).

Although both qualitative content analyses and totaling techniques have been extremely helpful

in bringing attention to how emerging adults use Facebook and in beginning to explore

motivations for online behaviors, we continue to require more comprehensive, developmentally

focused research.

This project attempts to expand on the existing literature by identifying developmental

trends in an effort to highlight the ways in which online social networking media platforms may

serve as a catalyst for negotiating identity development. As today's emerging adults' move

through the novel process of identity development, they do so with the power of social media

and interactivity in their corner. Because Erikson's original theoretical perspective on identity

development has a large social component, it is feasible to make the link that social networking

websites might play a role in the way that identity development today is experienced. Previous

research conducted regarding profile picture analysis, and/or online profile behavior has shown

that individuals use their profile picture as their primary online representation of their selves

(Slater, 1995; Strano, 2008; Zhao et al., 2008). Individuals tend to take profile picture selection

into great consideration, at it is generally able to be seen by the public – even if the profile has

strict privacy settings regarding page content (Gonzales & Hancock, 2011). Further, it has been

suggested that the effects of identity development within online settings may be more dynamic,

or fluid, due to the ability to change profile pictures so easily (Slater, 1995). Based off Erikson's

theory and the significance of profile picture selection, it is proposed that identity markers will

be associated with profile picture cycling – defined in this study as: the average number of times an individual changes their default profile and banner pictures. Further, based on Greenberger & Sorensen's (1974) report that individuals demonstrate more solidification in developmental tasks with age, it is proposed that a clear pattern of movement from less mature (foreclosure, diffusion) to more mature (moratorium, achievement) identity statuses will be indicated by age.

THE CURRENT STUDY: SUMMARY & HYPOTHESES

In summary, the literature suggests that social exchanges play a large role in identity development. However, the bulk of research on identity development in social contexts does not examine the role modern technology may play in providing the current generation of adolescents and emerging adults another platform for social exchanges to be experimented with, manipulated, and expressed. Consequently, it is reasonable to make the link that social networking websites might play a role in the way that identity development today is experienced. This study examines the ways in which emerging adults may use the expressive nature of online social media platforms as a catalyst for negotiating identity development. More specifically, the current study is an empirical investigation that seeks to understand how the normative developmental task of identity formation may be related to one's prime online self-presentation tool: the profile picture. Identity development outcomes (i.e., committed vs. exploration, or identity categorizations: achievement, foreclosure, moratorium, diffusion) are assessed as indicators of how emerging adults may use online self-presentation as an opportunity for exploration, and ultimately an indication of their developmental status. The major hypothesis of the proposed project is that indices of identity development will be associated with the participant's use of profile pictures, with additional full or partial explanatory power being provided by individuation from parents and/or personality factors.

The following questions (denoted by Q1, Q2, etc.) with their applicable hypotheses (denoted by H1, H2, etc.) were proposed to assess study premises:

Q1: Is profile picture cycling associated with participant age?

> H1: It is hypothesized that profile picture cycling will have an inverse relationship with participant age – such that as participants age, they will engage in less frequent profile picture cycling.

Q2: Is identity status associated with participant age?

> H2: It is hypothesized that participant' age will have a positive relationship with committed identity – such that as participants age, their identity status will become more committed.

Q3: Are rates of profile picture cycling associated with identity development?

> H3: It is hypothesized that increased rates of profile picture cycling will be associated with exploratory identity statuses (i.e. – moratorium, diffused).

> H4: It is hypothesized that decreased rates of profile picture cycling will be associated with committed identity statuses (i.e. – achievement, foreclosed).

Q4: Will individuation have a mediating effect on the relationship between profile picture cycling and identity status?

> H5: It is hypothesized that individuation will mediate the relationship between profile picture cycling and identity – such that either a full or partial mediation will provide more power & explanatory detail regarding the model.

Q5: Will personality traits have a mediating effect on the relationship between profile picture cycling & identity status?

> H6: It is hypothesized that extraversion will mediate the relationship between profile picture cycling and identity status.

> H7: Among older participants, It is hypothesized that 'Openness to Experience' will mediate the relationship between profile picture cycling and identity status.

METHOD

PARTICIPANTS

Overall database demographics

Participants for the current project were selected from this study's overall database which included data from individuals who qualified for the online study based on the general criteria for study participation: must be over 18 years old, have an active Facebook account, and use a cell phone. Although the title of the study, "Technology & Emerging Adulthood" may have indicated a maximum age for participation, no age limitation was provided. Only one potential participant contacted researchers to inquire about an age maximum, and was invited to take the study regardless of age.

The survey was accessed 788 times, and usable data was obtained from 510 different participants (as defined from unique IP addresses) who qualified for the study. Overall, database participants included those between the ages of 18-57, M=21.29 (SD = 3.87), 28% minority, and 70% female. The majority of participants were college students at a large Southeastern university; however, due to online and email listserv recruitment techniques, a variety of

participants indicated Midwest, Southeast, and West coast locations. The sample was comprised of 84% undergraduate students, with 9% identifying as graduate or professional students, and 7% indicated non-student status.

Current study demographics

Inclusion criteria for the current study were those between the ages of 18-25 who self identified as a Freshman, Sophomore, Junior, or Senior currently enrolled in college. After inclusion criteria filters were placed, participant demographics for this study ultimately were 428 emerging adults aged 18-25, $M = 20.09$ ($SD = 1.48$), 20% minority, and 71% female. Responses from Freshmen, Sophomores, Juniors, and Seniors were adequately represented at 30%, 25%, 23%, and 22%, respectively. Among the sample, these students reported a mean GPA of 3.2 ($SD = 0.60$). The diffused, moratorium, foreclosed, and achieved identity statuses were represented in this sample at 24%, 29%, 31%, and 16%, respectively.

PROCEDURE

Social networking site selection rationale & data collection strategies

Facebook was selected to explore profile picture cycling in spite of the development of other trendy social networking websites (e.g. – Twitter, Instagram, etc.) due to the larger number of relational components: ability to creatively represent self-image through a variety of methods, high levels of interactivity (e.g. - ability to 'like', share, or comment on other user's content), and an ability to present an extensive 'about me' section than its counterparts. Due to these relational aspects of Facebook, the construct of identity development is more likely to emerge as users have a great amount of personal flexibility in what to display (or purposefully not display). Additionally, Facebook was also selected for this study as it continues to be the primary social

networking site of choice (see Figure 1 in Appendix A; Lenhart, Purcell, Smith, & Zickuhr, 2010). Due to its popularity, Facebook is also commonly accessed from its SmartPhone application, which allows users to conveniently log-in directly from their mobile phone. When accessed from mobile phone applications, Facebook is equipped to be used as a way to quickly check any recent friend status updates, personal update notifications (e.g., another person 'liked' a picture you posted), check-in to a location (e.g., letting friends know you are at the airport preparing to depart for vacation), directly upload pictures taken from mobile phone, or update one's own personal status update.

As this study's main investigative purpose is to examine participant's online profile picture behavior over time, there is a significant possibility of participants falling into research demand characteristics – such that participants might have been tempted to alter their Facebook usage behavior. To minimize this altering of behavior, historical data will be collected from participants at one, singular time point. Three additional advantages to this type of data collection strategy involve privacy management, accuracy in reporting, and obtaining longitudinal data in a one-time participation model.

Researchers who study online behaviors are faced with the dilemma of attempting to gain accurate data without invading participants' privacy. In order to track online behaviors longitudinally, it frequently becomes necessary to "friend" participants in order to gain access to their social networking website page (especially if their page is private), which is problematic for a variety of reasons pertaining to perceptions of safety and other concerns of institutional review boards. To circumvent this need, participants will be prompted to independently log into their Facebook accounts and provide researchers with concrete information regarding their profile. Participants are also more likely to report accurate data, as they will already have online access

while taking the survey. Had this study been given via paper and pencil methodology, participants may be more tempted to simply estimate profile picture dates. And finally, as Facebook profile pictures are time stamped with the date of upload, longitudinal data can be easily collected retrospectively in one time point. This method prevents the need for researchers to continuously track participant behaviors prospectively. When applicable, this method of data collection can potentially save resources, minimize demand characteristics, and help protect user privacy.

Survey creation

As suggested by Dillman, Tortora, Conradt, and Bowker (1998), particular attention was made in the initial creation of this online study, such that it was presented via a user-friendly interface which was easy to access, and select &/or enter responses, and was. Data was collected via the secure online servers provided by Qualtrics (a data collection website commonly utilized in the social sciences). Due to the number of items administered, and the average pilot completion time being 30-60 minutes, each portion of the survey was displayed on a new webpage in order to not visually overwhelm participants. Motivating messages (e.g., "Only 3 more screens remaining…") were also placed to notify participants of their progress, and encourage full participation.

Participant recruitment

Numerous recruitment strategies were employed, including both online and in-person recruitment. Online recruitment primarily took place on Facebook via the creation of an 'event.' Members of the administering research team created these Facebook events, posted invitations as 'status updates,' and also encouraged others to disseminate the link to the survey. Email listservs

were also utilized for recruitment efforts, including several invitations being sent to research

colleagues at various universities and colleges in the Midwest, Southeast, and West coast

regions. In social media fashion, these listservs and forwarding emails were used to extend the

invitation for participation. Online recruitment efforts also took place via the University of

Tennessee's psychological sciences research participation website in which students can fulfill

research requirements by participating in active projects. Because most of the students recruited

from the University of Tennessee's research participation website were Freshmen and

Sophomores (due to the introductory nature of most classes that incorporate research

participation), special effort was made to balance the subject pool by actively recruiting Juniors

and Seniors (or individuals over 20 years old in general). Researchers visited upper-level courses

and transparently discussed the need for older participants, especially given the developmental

nature of the survey. All individuals interested in participating provided their email to the

researcher, and were promptly sent the link to participate in the study.

Survey Experience

Participants were invited to take a one-time, online survey on technology and emerging

adulthood. Potential participants were instructed that the study, comprised of various

psychological measures and questionnaires, would take approximately 30-60 minutes to

complete. Before obtaining access to any survey material, participants were first led through the

confidentiality and informed consent page (in which an overview of potential risks, benefits, and

incentives were detailed). Participants were notified that at the conclusion of the study, they

would be invited to enter a raffle for a $25 e-gift card to Target.com. Entry into the raffle was

voluntary, and served as an incentive for participation in this research project. Because it was

projected that most participants would likely be tech-savvy users, e-gift cards were specifically

chosen as an option which may be especially desirable for this audience. Keeping in line with the nature of this fully online study, redeemable e-gift cards were also especially appropriate for this project as it prevents researchers from requiring participants to provide their physical mailing address, or pick-up their gift in-person.

Participants were instructed that the study was completely voluntary, and that they could decline or terminate participation at any point. Participants who wanted to provide their consent were instructed to click the "next" button at the bottom of the page. Participants who did not consent to the study were instructed to not continue, and to exit the study completely by closing their web browser.

As the survey was completely self-directive and available 24hrs/day, participants were able to independently access the research study at a time that was convenient for them. To begin the survey, participants were initially prompted to provide basic demographics (i.e., age, gender, race, grade, highest education obtained, city/state, etc.); however, the bulk of the survey consisted of reporting information pertaining to their Facebook & cell phone usage, and completing the measures & assessments detailed in the 'Measures' section below.

Facebook data collection

Slightly different from simply asking participants to estimate & report their behaviors, at one point of the study, participants were instructed to obtain and report concrete data directly from their Facebook page. In order to facilitate this process, a link to www.Facebook.com was embedded within the survey which opened a new window. Participants were able to toggle back and forth between their Facebook screen and the study screen. Due to the criteria for study participation (i.e., must have active Facebook page, and be a mobile phone user), most

participants were likely technologically savvy Facebook and web users. However, to ensure

conformity and clarity, detailed instructions were provided regarding 'what to click' or 'where to

go' to obtain survey answers. For example, participants were instructed to report the number of

profile pictures & cover photos they uploaded between January-2012 to January-2013. As an

addendum, detailed instructions were provided: "Go to your main page, click on PHOTOS →

click on ALBUMS→ click on PROFILE PICTURES. Add up how many different profile

pictures you have uploaded between January-2012 and January-2013. Don't forget to also

include your "cover photos" which are located in the COVER PHOTOS album. You must click

on the pictures to view the upload date." These instructions were piloted on five individuals who

reported they were easy to understand and follow.

Data management

   Special efforts were made to ensure that the final 588 data entries represent valid data, with

each of those entries being a new participant. Although participants theoretically could have

taken the survey more than once by accessing the survey from different computers

(circumventing the IP address restriction), study incentives were minimal, and no repeat email

submissions (required for the gift card raffle) were present. Although these are good indicators of

sound data collection, it is still commonly expected (especially with online data collection) that a

minority of participants likely did not take the survey as intended for a variety of reasons (e.g., in

a hurry, primary goal is to obtain the incentive, distracted by other stimuli, curious about content,

etc.). Osborne and Overbay (2004) provide a detailed review of best practices in data cleaning,

various types of outliers (e.g., data entry errors, purposeful misreporting, etc.), and general

information regarding the possible negative effects from maintaining erroneous data. Because

data is typically downloaded directly from the data collection website into a statistics software

program when conducting online studies, data cleaning is not particularly necessary to address data-entry errors. Despite this advantage, data cleaning protocols are typically still necessary regardless of how much upfront care was taken to ensure the collection of sound data (Selm & Jankowski, 2006).

Applicable preliminary safeguards and exclusion factors pertaining to the raw dataset were put in place: survey completion time improbable (i.e., completing the entire study in less than 15 minutes), and/or data showed a clear violation of directions (i.e., acquiescing or yea/nay-saying, invalid measure results, and inconsistent or unattainable response combinations). For example, participants who checked "C" for all items in the study, individuals who answered similar questions in inconsistent pattern (e.g., indicated they "never" change their profile picture, but entered various profile picture upload numbers).

Unusable data largely came from survey "hits," in which individuals only opened, but did not complete the survey. Most "completed" surveys that could be excluded due to the 'clear violation of directions' safeguard, also met the 'survey time was less than 15 minutes' exclusion criteria. Overall, this duplicity of error suggest that the safeguards and exclusion factors likely adequately captured participants who haphazardly acquiesced through the study, while maintaining data from participants who purposefully engaged in the study (regardless of whether parts of their data could be considered an 'outlier' for other reasons). The primary goal was only to identify and delete incomplete and/or erroneous data, not to normalize, restrict, or transform the raw data in any way. This goal was met by following the safeguards and exclusion criteria detailed above.

MEASURES

The Demographic Information Form

Created for this project, this form asked common demographic questions including participants' gender, age, ethnicity, academic year, GPA, etc. Also included within this form were questions to assess proximal distance between parent and child. To assess, participants indicated their current geographic location (city, state), and then also entered the geographic location (city, state) for their parent/s. A Google® mileage variable was created by calculating the difference of mileage between the cities. If a participant entered the same city & state for both themselves and their parent/s, the calculated difference score was 0.

Facebook self-presentation questionnaire

Created for this project, this questionnaire assessed online self-presentation, and general website usage trends. Example items from this brief questionnaire assessing Facebook usage is, "How often do you look at/check Facebook" and, "When using Facebook from a mobile phone, how long do you typically browse?" Questions also prompted participants to log into their Facebook accounts to report concrete historical data which Facebook automatically retains. An example question for these queries included, "During the last YEAR (January/2012 – January/2013), how many different profile pictures AND cover photos did you upload?" Participants were able to enter individual numeric values by month.

Ego Identity Process Questionnaire: EIPQ (Balistreri, Busch-Rossnagel, & Geisinger, 1995)

This measure was administered to gauge identity development. Consisting of 32 items,

the EIPQ assesses both of the essential scales specific to identity development:

exploration vs. commitment (Marcia, 1966), and the four identity statuses (Marcia, 1993).

This measure is unique in that a detailed scoring outline is provided such that participant

scores can initially assess the identity exploration vs. commitment variable, and

subsequent scoring assigns participants into one of Marcia's (1993) four identity statuses:

achieved, foreclosed, moratorium, diffused. These constructs are tapped into by asking

participants about their current sentiments and/or beliefs within the following areas:

occupation, religion, politics, values, family, friendship, dating, and gender roles.

Example items from the EIPQ include, "My values are likely to change in the future"

and, "I an unlikely to alter my vocational goals." Overall, the EIPQ is a commonly

administered measure used for assessing identity development, and has consistently been

shown to demonstrate good validity and reliability. This study demonstrated acceptable

reliability for both the exploration (α=.72) and commitment (α=.79) subscales.

The Inventory of Peer and Parent Attachment: IPPA (Armsden & Greenberg, 1987)

This 25-item questionnaire assesses perceived attachment to parents and peers. As this

study was primarily concerned with parent attachment, only the parent subscale was

administered. The measure consisted of three primary subscales: Trust (e.g. "I trust my

parents"), Communication (e.g. "I can count on my parents"), and Alienation (e.g. "I feel

angry with my parents"). Using a 5-point Likert scale, responses ranged from 1 (*almost

never or never true*) to 5 (*almost always or always true*). Appropriate items are reversed

scored according to the manual's scoring directions. To obtain a total attachment score,

the alienation scale is reversed scored, and the three subscales are summed. Higher scores

indicate higher levels of secure attachment. The IPPA is a commonly used measure given to quickly assess parent attachment structures, and has consistently demonstrated good psychometric properties. Excellent internal reliability was demonstrated with this sample (α=.95).

<u>Separation-Individuation Test of Adolescence</u>: SITA (Levine et al., 1986)

The SITA was administered to assess levels of the developmental construct known as individuation. The SITA is comprised of 103 items when all 6 subscales (Separation Anxiety, Engulfment Anxiety, Rejection Expectancy, Nurturance-Symbiosis, Need Denial, Self-Centeredness, and Healthy Separation) are administered. For this study, the three subscales (Separation Anxiety, Engulfment Anxiety, and Rejection Expectancy) which have previously shown good internal reliability estimates among college student samples (Mattanah et al., 2004) were administered. These three subscales include 33 items, and respectively measure: fear of losing emotional connectivity, lack of autonomy driven by controlling parents or enmeshed parent-child relationships, and emotional callousness (Levine et al., 1986; Levine & Saintonge, 1993). Because these subscales focus on problematic individuation patterns, when these subscales are summed, higher scores on this measure indicate more "maladaptive individuation." Indices of 'problematic' individuation have been shown to impact adjustment more than functional independence (e.g. – autonomy) and comparatively demonstrate better psychometric properties than the SITA's own 'healthy' separation' subscale in some studies (K. G. Rice, Cole, & Lapsley, 1990). Overall, the SITA has demonstrated good psychometric properties, and has been shown to have good internal reliability and construct validity (Levine et al., 1986; McClanahan & Holmbeck, 1992). Example items from this measure

include, "Being alone is a very scary idea for me" and, "Sometimes I think how nice it

was to be a young child when someone else took care of my needs." Excellent internal

reliability of this measure was demonstrated with this sample (α=.92).

Symptom Checklist-90-Revised: SCL-90-R (Derogatis, 1994)

This 90-item measure assesses negative psychosocial symptoms. It is comprised of 9

subscales including somatization, obsessive-compulsive, interpersonal sensitivity,

depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism.

Participants rate the extent to which they are distressed by each item on a 5-point scale,

from 0 = "Not at All" to 4 ="Extremely." A commonly used clinical and research tool,

example SCL items in which participants rate their level of distress are: Headaches,

Crying easily, Trouble falling asleep, Thoughts of death or dying, trouble concentrating,

and Shouting or throwing things. Greater scores on each subscale, and the 'overall

distress' SCL subscale, are indicative of higher levels of psychological pathology.

Excellent internal reliability for this measure was demonstrated for this sample (α=.98).

Ten-Item Personality Inventory-(TIPI) (Gosling, Rentfrow, & Swann, 2003)

The "Big 5" personality characteristics (Openness to experience, Conscientiousness,

Extraversion, Agreeableness, and Emotional Stability) were assessed via this 10-item

inventory. This inventory was developed in a purposeful effort to greatly reduce the

amount of items needed to assess personality, while maintaining good internal & external

validity. The time-saving benefits of administering this shortened personality inventory

outweigh the costs of not including more traditional personality measures (such as the

240-item NEO or the 44-item Big-Five Inventory). Due to the item reduction, this peer-

reviewed and validated measure risks sacrificing higher internal reliability scores in many samples. This was demonstrated in this sample, as the internal reliability was only α =.62. Nevertheless, the validation of this measure demonstrated column-vector correlations exceeding .90 in relation to the well validated Big-Five Inventory. Participants rate from 1 (strongly disagree) to 7 (strongly agree) how a particular trait applies to them. Item examples include: Critical, quarrelsome; Reserved, quiet; and Open to new experiences, complex.

RESULTS

SOCIAL MEDIA USAGE ANALYSIS

Regarding social media usage, sample demographics support the continued popularity of Facebook as participant's primary social networking website choice (see Figure 2 in the Appendix section). Specific to Facebook usage only, 88% of users reported having access to Facebook on their mobile phone, with most people 'checking' their account between 9-13 times per day (e.g., every couple of hours). To view the entire distribution related to how many times people check their Facebook page, see Figure 3 in the Appendix section. When logging into Facebook from a desktop computer, the vast majority (94%) of participants report spending about 30 minutes or less. Pertaining to profile picture cycling, participants in this study cycled through 1.06 pictures per month, for an average of 13.74 pictures in the 13 month data collection range.

PROPOSED HYPOTHESES RESULTS

For clarity, results are presented respectively in the order they were proposed above with each associated research question and hypothesis:

Q1: Is profile picture cycling associated with participant age?

H1: It is hypothesized that profile picture cycling will have an inverse relationship with

participant age – such that as participants age, they will engage in less frequent profile

picture cycling.

FINDING:

As hypothesized, profile picture cycling demonstrated a significant inverse bivariate

correlation with participant age – such that increased participant age was associated with less

profile picture cycling (*r*= -.133, *p*<.01, N=411).

Q2: Is identity status associated with participant age?

H2: It is hypothesized that participant' age will have a positive relationship with

committed identity – such that as participants age, their identity status will become more

committed.

FINDING:

As hypothesized, identity status was associated with participant age. Interestingly, age

was only marginally significant with the EIPQ commitment subscale (*r* = 0.85, *p* = .056).

However, the four different categorical identity subscales provided more clarity regarding the

association between age and identity (see table 1 in Appendix section). Significant associations

were present for two of the four identity statuses. Age was negatively associated with the

'Diffused' identity stage; meaning that as participants grow older, they are less likely to have a

diffused identity (*r* = -.177, *p* =.000). And secondly, age was positively associated with the

'Achieved' identity stage, meaning that as participants grow older, they are more likely to have

an achieved identity ($r = .156$, $p = .000$). To examine this association between age and identity

status in a different way, multiple post hoc comparisons were made via ANOVA analyses.

Findings demonstrated a significant mean difference between the 'Achieved' and 'Diffused'

identity categories (M = 2.39, SE = .78) as a function of age $F(3, 304) = 3.17$, $p<.05$.

Specifically, this indicates that, in terms of age, there is a significant difference of over two years

between having an 'Achieved' versus a 'Diffused' identity. Directional analyses of the findings

demonstrate that it is the individuals with the 'Achieved' identities who are 2.39 years older than

those with 'Diffused' identities. All of these findings are indicators of healthy, normative

psychosocial identity development.

Q3: Are rates of profile picture cycling associated with identity development?

> H3: It is hypothesized that increased rates of profile picture cycling will be associated
>
> with exploratory identity statuses (i.e. – moratorium, diffused).

> H4: It is hypothesized that decreased rates of profile picture cycling will be associated
>
> with committed identity statuses (i.e. – achievement, foreclosed).

FINDING:

Hypotheses regarding the association between profile picture cycling and identity

development were largely incorrect. In fact, analyses demonstrated precisely the opposite of

what was hypothesized. Across the four various identity statuses (Diffused, Moratorium,

Foreclosed, and Achieved), there were no significant associations with how much an individual

changes their profile picture. Further, contrary to what was initially hypothesized, findings

revealed that there was a significant, positive association between the EIPQ Commitment

subscale and profile picture cycling. This suggests that the more an individual changes their

profile picture, the more likely they are to be committed to an identity ($r = .116$, $p < .05$). Of note, this trend was maintained when controlling for gender and age in regression analyses, $b = 1.10$, $t(425) = 1.92$, $p < .05$. Overall, this finding shows that identity commitment is a significant predictor of profile picture cycling.

Q4: Will individuation have a mediating effect on the relationship between profile picture cycling and identity status?

H5: It is hypothesized that individuation will mediate the relationship between profile picture cycling and identity – such that either a full or partial mediation will provide more power & explanatory detail regarding the model.

FINDING:

As hypothesized, individuation was shown to have a mediating effect on the relationship between profile picture cycling and identity status (see figure 4 in the Appendix section). Meeting the statistical preliminary requirements for mediation, all model pathways demonstrated significant standardized regression coefficients. Specifically, in Step 1 of the mediation model, the regression of identity commitment (EIPQcommit) on individuation scores (SITA) was significant, $b = -.171$, $t(424) = -6.754$, $p = .000$. Step 2 showed that the regression of identity commitment (EIPQcommit) on profile picture cycling was also significant, $b = 1.36$, $t(427) = 2.41$, $p < .05$. Step 3 showed that the regression of individuation scores (SITA) on profile picture cycling was also significant, $b = -2.615$, $t(424) = -2.52$, $p < .05$. And lastly, to test for full mediation, step 4 of the analyses revealed that when the mediator (individuation; SITA) was incorporated into the model, the direct effect between profile picture cycling and identity commitment was no longer significant, $b = .982$, $t(424) = 1.789$, $p = .074$. When controlling for

age and gender, the same pattern was indicated, demonstrating that individuation fully mediates the relationship between profile picture cycling and identity commitment, $b = .647$, $t(422) = 1.152$, $p = .250$.

In order to probe the significant interactions, and confirm a significant difference between the resulting direct and indirect findings, the bootstrapping procedure described by Preacher and Hayes (2004) was utilized. Identifying whether significant differences between the direct and indirect models is more beneficial when the indirect effect pathway remains significant, whereas the results of this mediation model are already intuitively clear due to the resulting insignificance of the previous direct effect. Nevertheless, bootstrapping results are provided for statistical clarity. In bootstrapping analyses, mediation is significant at p<.05 (two tailed) if the 95% Bias Corrected and accelerated confidence intervals for the indirect effect do not include zero (Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007). Results based on 3,000 bootstrapped samples confirmed that individuation fully mediated the relationship between profile picture cycling and identity commitment (IE lower level 95% CI=0.1382, upper level 95% CI=0.8328).

The bootstrap procedure has been found to be superior to other methods, such as the Sobel test, which has been shown to have relatively low statistical power (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). However, due to the popularity of the Sobel test (especially with large samples) within various social sciences, Sobel test results are also provided for clarity. Results of the Sobel test indicated that this model's mediation was indeed significant as the primary Sobel test statistic generated a z-score greater than +/1.96 (z = 2.34, p=.019).

In short, because the direct effect was no longer significant after incorporating the mediator into the model, the relationship between profile picture cycling and identity commitment was fully mediated by individuation. Thus a clearer, causal relationship between the three variables has been established. Similar to a domino effect, this causal pathway helps us understand *why* there is a relationship between profile picture cycling and identity commitment. Implications of this are considered in the discussion section.

Although this general research question and specific hypothesis posits a general association between overall identity status and profile picture cycling, it is important to highlight that the full scope of identity processes were assessed in this project: identity status in terms of both identity exploration versus commitment, and the four identity categories (Achieved, Diffused, Moratorium, and Foreclosed). Theoretically, this could allow for six mediation models; however, the only measurement that met all the required statistical prerequisites of mediation was 'Identity Commitment'. Therefore, other mediation models could not be explored.

Q5: Will personality traits have a mediating effect on the relationship between profile picture cycling & identity?

H6: It is hypothesized that extraversion will mediate the relationship between profile picture cycling and identity.

FINDING

As hypothesized, the personality trait extraversion was shown to have a mediating effect on the relationship between profile picture cycling and identity (see figure 5 in Appendix section). Meeting the statistical preliminary requirements for mediation, all model pathways demonstrated significant standardized regression coefficients. Specifically, in Step 1 of the

mediation model, the regression of identity commitment (EIPQcommit) on extraversion scores (TIPI) was significant, $b = .705$, $t(426) = 4.50$, $p = .000$. Step 2 showed that the regression of identity commitment (EIPQcommit) on profile picture cycling was also significant, $b = 1.36$, $t(427) = 2.41$, $p < .05$. Step 3 showed that the regression of extraversion scores (TIPI) on profile picture cycling was also significant, $b = .749$, $t(426) = 4.44$, $p = .000$. And lastly, to test for full mediation, step 4 of the analyses revealed that when the mediator (extraversion; TIPI) was incorporated into the model, the direct effect between profile picture cycling and identity commitment was no longer significant, $b = .862$, $t(426) = 1.513$, $p = .131$. Identical trends among each analyses step resulted when controlling for age and gender, ultimately indicating that extraversion fully mediates the relationship between profile picture cycling and identity commitment, $b = .670$, $t(424) = 1.157$, $p = .248$.

In order to probe the significant interactions, and confirm a significant difference between the resulting direct and indirect findings, the bootstrapping procedure described by Preacher et al. (2007) was utilized. Identifying whether significant differences between the direct and indirect models is more beneficial when the indirect effect pathway remains significant, whereas the results of this mediation model are already intuitively clear due to the resulting insignificance of the previous direct effect. Nevertheless, bootstrapping results are provided for statistical clarity. In bootstrapping analyses, mediation is significant at $p < .05$ (two tailed) if the 95% Bias Corrected and accelerated confidence intervals for the indirect effect do not include zero (Preacher & Hayes, 2004; Preacher et al., 2007). Results based on 3,000 bootstrapped samples confirmed that extraversion fully mediated the relationship between profile picture cycling and identity commitment (IE lower level 95% CI=0.2232, upper level 95% CI=0.8742).

The bootstrap procedure has been found to be superior to other methods, such as the Sobel test, which has been shown to have relatively low statistical power (MacKinnon et al., 2002). However, due to the popularity of using the Sobel test (especially on large samples) within various social sciences, Sobel test results are also provided for clarity. Results of the Sobel test indicated that this model's mediation was indeed significant as the primary Sobel test statistic generated a z-score greater than +/1.96 (z = 3.01, p=.002).

In short, because the direct effect was no longer significant after incorporating the mediator into the model, the relationship between profile picture cycling and identity commitment was fully mediated by extraversion. Thus a clearer, causal relationship between the three variables has been established. Similar to a domino effect, this causal pathway helps us understand *why* there is a relationship between profile picture cycling and identity commitment. Implications of this are considered in the discussion section.

Q5: Will personality traits have a mediating effect on the relationship between profile picture cycling & identity?

H7: Among older participants, It is hypothesized that 'Openness to Experience' will mediate the relationship between profile picture cycling and identity.

FINDINGS:

There was a significant bivariate correlation between profile picture cycling and personality openness – such that increased personality openness was associated with more profile picture cycling ($r = .096$, $p < .05$). As a result, the effect that one's level of openness may have on the established relationship between profile picture cycling and identity commitment was explored. However, preliminary regression analyses demonstrated that the prerequisite

requirements for conducting mediation model analysis were not met due to the non-significant regression between identity commitment and personality openness ($b = .263$, $t(424) = 1.14$, $p = .26$.

In alignment with the hypotheses, this same relationship was explored specifically among older participants. To conduct analyses on this specific population, cases were selected with the criteria that participant age was greater than 22 (this cut-off was established based on the upper thirds of the sample). Due to the focus on emerging adulthood age range, the age limit for this study's sample was set at 25; therefore, although arbitrary, "older" participants constituted those over 22.

Among older students (Age > 22), there was still a significant bivariate correlation between profile picture cycling and personality openness – such that increased personality openness was associated with more profile picture cycling ($r = .096$, $p < .05$). In accordance with the hypothesis, and the non-significance of the previous mediation model among all ages, the relationship of personality openness between profile picture cycling and identity commitment was again explored with the age restriction in place. Similar to above findings, the preliminary regression analyses demonstrated that the prerequisite requirements for conducting mediation model analysis were not met due to the non-significant regressions between variables. Interestingly however, among older students, all of the model's pathways become non-significant, including the profile picture cycling to identity commitment pathway. Because this was significant prior to setting the >22 age criteria, this provides some support that developmental nuances in identity are illustrated when age is manipulated. In brief, contrary to what was hypothesized, there was no relationship between personality openness, profile picture cycling, and identity status.

DISCUSSION

Within a short amount of time, historically speaking, technology has changed the landscape of our lives. It has now become difficult to find an adolescent or an emerging adult who does not own a cell phone, or have a Facebook page. A basic media profile analysis of this sample showed that 88% of individuals had Facebook available to them 24-hours/day, via an "App" (or an 'Application' program) directly on their cell phone. Many young Americans know how to build and manage their own websites, and are naturally fluent in computing technology that seemed completely foreign only 10 to 15 years ago. One primary topic that has been a recent area of growing interest surrounds the impact of social networking websites – such as Facebook and Twitter. Emerging adults make up a vast number of social media users, and the developmental implications of their usage trends are just starting to be researched to the degree in which is warranted for such a widespread, dynamic social platform.

Previous work has indicated that future research efforts should be put into exploring whether identity development is associated with the frequent changing of profile pictures on social networking websites (Hum et al., 2011), especially from experimental & developmental models (Kroger, 2000; Subrahmanyam, Smahel, & Šmahel, 2011). This line of thinking has been suggested in numerous research articles (Gonzales & Hancock, 2011; Slater, 1995; Strano, 2008; Zhao et al., 2008), and demonstrates a good amount of relevant support from early theories of psychosocial development (Erikson, 1968) & self-presentation (Goffman, 1959). One of the primary goals of this study was to explore this assertion that identity development may be related to the rate in which individuals' cycle through their profile pictures. Although the premise was reasonable, this study demonstrated findings that were largely contrary to what was hypothesized based on the existing literature.

As hypothesized, preliminary findings between age and profile picture cycling were found to have a significant inverse relationship; suggesting that as individuals' age, their profile picture cycling rates decrease. Also as hypothesized, preliminary findings between age and identity status showed that increased age was associated with decreased amounts of diffused identity statuses; and conversely, increase age was associated with increased amount of achieved identity statuses. These findings are in clear cohesion with the existing body of literature on social media, and identity development. The finding between aging and decreased amounts of profile picture cycling, specifically, adds to the dearth of literature on developmental trends in social media usage.

Interestingly, although this study demonstrated that emerging adults are more likely to have developed an achieved identity status as they progress through college; only 21% of the participants in this study reached the achieved identity category by their senior year of college. The seniors, who still showed the most age-appropriate developmental trends, still demonstrated relatively high rates of identity diffusion (16%), moratorium (38%), and foreclosure (26%). Given the importance of resolving age-related developmental tasks (Côté, 2006; Luyckx, Schwartz, Goossens, Beyers, & Missotten, 2011), these statistics appear quite bleak; however, they are not uncommon. Some research has been provided on individuals who continue to require an extended amount of time to negotiate on and fully develop a solidified identity. Numerous theories have been proposed, suggesting that these individuals may have an unhealthy degree of apathy, avoidance, a pathological desire to continuously 'find oneself,' or even an inflexible propensity towards perfection that perpetuates indecisiveness (Archer & Waterman, 1990; Berzonsky, 1985; Campbell & Paula, 2002; Luyckx et al., 2008; Luyckx et al., 2011). In a 2006 analysis by Cote, emerging adulthood is conceptualized as an "Institutionalized

Moratorium," the formal allowance for individuals to use an extended period of time to resolve identity crises in structured contexts (e.g., college, military, travel experiences). The implications of a continued moratorium include delayed functioning as an adult member of the community or workforce, and possible issues with more pronounced identity crises as an adult (Cote, 2006). Providing a more environment contingent and relational conceptualization identity development, Akers et al. (1998) suggests that lack of identity development may essentially be 'contagious.' Albeit their study focused on adolescent friendships, it was found that dyads of friends were likely to remain similar in their identity development. It may be the case that college campuses, and the close friendships developed there within, may be inspiring an atmosphere of continued diffusion, moratorium, and foreclosure among students.

As mentioned above, personality can also influence identity development (Gosling et al., 2011 ; Kramer & Winter, 2008). Due to previous research demonstrating that personality characteristics, especially extraversion, can be predictive of the way in which users approach and engage social networking websites, the mediating relationship of personality on profile pictures and identity was also explored. Supporting the literature, this study also found a significantly positive relationship between extraversion and the amount of profile pictures an individual uploads. This research further demonstrated that extraversion fully mediated the relationship between profile picture cycling and identity commitment. Overall, this suggested that personality traits should be included in similar research as it appears to play an important role in the relationship between how individuals use social media and psychosocial development outcomes.

The primary unexpected finding from this study was the positive association between identity commitment and profile picture cycling. This indicates that as levels of identity commitment increase, the amount of profile pictures also increases. If profile pictures were being used as a

catalyst for identity development as hypothesized, it would most likely be the case that profile picture cycling would be associated with identity exploration. Conversely stated, expectations were that increases in identity commitment would be associated with decreased amounts of profile picture displays. Discussed below are several explanations to this unexpected finding, all of which can be viewed as complementary to existing research.

Individuals who demonstrate higher levels of identity commitment may experience a sense of freedom associated with having a solid understanding of who they are as individuals; thus, allowing them the practical freedom to openly express themselves via their profile pictures. Given the previous research on the significance of the profile picture (Gonzales & Hancock, 2011; Strano, 2008), it may be the case that only individuals who have a solidified confidence regarding their identity feel comfortable changing this iconic self-representation on a frequent basis. People who have committed to an identity may be more comfortable incorporating and portraying various aspects of themselves for public display, not concerned with the self-doubt and need for acceptance that plagues some individuals who are still trying to solidify their identities.

Continuing for a moment to conceptualize the unexpected positive relationship between increased profile picture cycling and identity commitment as possibly being related to the demonstration of solidified states of confidence, or self-assuredness, it might be said that these individuals demonstrate greater amounts of ego-strength (or a psychological resiliency which is central to one's sense of self). Individuals with greater levels of ego strength demonstrated greater comfort and ability to autonomously stand alone (Lasser & Snarey, 1989). Further, through ego development, life's experiences can be integrated and dealt with in a flexible manner (Tanner, 2006) – possibly similar to the 'identity committed' emerging adults in this

sample who demonstrate a tendency to upload more profile pictures. The ability to have an identity committed status, while concurrently cycling through numerous representations of identity, requires a great deal of psychological integrity and flexibility.

Erikson's theory of identity development included a social component that was indeed contingent upon a healthy amount of ego strength (Erikson, 1968; Waterman, 1982). Although this study did not measure ego-strength directly, ego development is strongly associated with related constructs such as autonomy and separation-individuation (which were assessed). In this context, the findings that individuation fully mediated the relationship between profile picture cycling and identity commitment is even more compelling. This study found that it is because of decreased rates of maladaptive separation-individuation that the relationship between increased profile picture cycling and identity commitment exists. These findings support previous literature that discusses the importance of individuation, especially among emerging adults, in identity development. These findings add to the literature by demonstrating how the use of technology can be a normative experience in the healthy development of emerging adults.

Although a positive association between overall levels of identity commitment and profile pictures was found, no significant association between any of the identity statuses (i.e., Achieved, Foreclosed, Moratorium, and Diffused) and the frequency in which profile pictures are changed. Therefore, no significant associations regarding identity exploration as a function of social media can be concluded from this study. Today's emerging adults, or the generation known as the Millenials, are extremely savvy users of social media, and many are sensitive to the decreasing amounts of privacy offered within social networking. Therefore, many emerging adults may specifically monitor their profile picture selection with the understanding that the profile picture is commonly a 'public' photo that can be displayed in searches, or be seen by their

"friend's friends" when leaving comments on another person's Facebook 'Wall.' For example, an individual may feel comfortable showing a photo of themselves that may be highly related to their developing identity (e.g., pictures from a Bar mitzvah) to everyone on their friends list; however, they may have some hesitance about openly letting this photo be the primary representation of themselves to others. Thus, due to the potential that one's profile picture might have a wider reach than intended, individuals might not use it (at least solely) to implicitly express their identity.

Limitations and suggestions for future research

It is important to highlight that the findings of this study demonstrated weak effect sizes, and unimpressive correlational strength despite the statistical significances rendered. It may be the case that individuals do still use the platform of social media as an outlet for identity exploration, but in a more holistic (and private) manner. For example, some of the literature discussing identity development and social media analyzed user's entire page (Schmitt et al., 2008; Zhao et al., 2008) when making associations between identity development and social media usage. Although not the specific goal of this research project, one limitation of this study may be the lack of 'whole page' user content. Instead, data collected for this study focuses specifically on the user's profile picture. Entire page content analysis occasionally requires researchers to "friend" participants in order to gain access to all of their content, which may be private to non-friends. Although negating this requirement was initially viewed as a methodological advantage, more insight regarding identity development may be found when a user's entire social media experience is analyzed. Although the profile picture has been argued to be the singular, most direct way to represent of one's identity online, emerging adults may simply not use it as the primary expression of their identity exploration. Therefore, it may be the case that future

research should consist of developmentally sound, experimental projects which examines all of a user's social media content, rather than only profile pictures.

As is common with online research studies, one major limitation surrounds the inclusion of participants who submit erroneous or misleading data for a variety of reasons (e.g., they are in a hurry, primary motivation is to obtain an incentive, distracted by other stimuli in their environment, randomly click through because they are curious about survey's content, etc.). Due to the nature of online data collection, it is frequently not possible to control for these factors; however, the benefits of collecting this data online (e.g., participants who qualify for this study are likely to be savvy technology users, increase recruitment of participants in various regions, encourage higher participant numbers, etc.) outweighed the disadvantages. Nevertheless, the limitations regarding online recruitment and survey administration are still present. Efforts to minimize the effects of these limitations are detailed in the methods section.

Additionally, while it is now more common than not for emerging adults to own a cell phone and use Facebook, this primary inclusion requirement may have restricted individuals who only use one of these technologies from participating. Further, potential online identity development of those who are not users of technology was not assessed. It may be the case that individuals who choose to not use various modes of social technologies (e.g., cell phones, social networking websites, etc), are inherently different than individuals captured in this study. Also, due to the technology-focused nature of this study, users were assumed to have a degree of familiarity with the functionality of their cell phone and Facebook. For example, although instructions were provided, less technologically-savvy participants may have had trouble figuring out how to access their profile pictures folder on Facebook.

One major limitation of collecting historical profile picture data directly from the "profile pictures folder" on Facebook pertains to the repeated use of one image. For example, if a user has more than one profile picture stored on Facebook, they may decide to go back into their profile picture folder and choose to revert back to a previously displayed profile picture. Whenever users cycle through the same couple of images on within their profile pictures folder, Facebook simply switches the displayed profile picture instead of repeatedly adding that same photo to the folder. At this time, there is no way to historically track how many times a user may have opted to revert back to a previous profile picture. In application, for example, this means that even if a Facebook user only had two photos stored in their profile pictures folder, they may engage in a high rate of photo cycling between those images. Due to the way in which the data was collected, repeatedly cycled images were not captured. However, the Facebook questionnaire created for this study also asked participants to estimate how often they changed their profile picture. Most discrepancies involved users entering high numbers for the amount of uploaded photos in their folder, and then indicating that they "never" changed their profile pictures. Any unlikely, but still theoretically possible, entries (e.g., reporting only 3 uploaded photos, but indicating that they change their profile pictures nearly every day) were not deleted. Unfortunately, because repeated images could not be accurately captured in the numerical count, study findings regarding profile picture cycling may be weakened.

Overall, general developmental trends were supported in some areas and challenged in others. Trends related to age & profile picture cycling, age & diffused identities, and age & achieved identities were found to be in support of general developmental hypotheses, suggesting that as one ages, solidification in identity occurs. This study challenged scientific thinking in other ways, specific to how identity and technology may interact. Overall, this study supported

the notion that 'online' behaviors are simply a representation of what is occurring 'offline.' The

association between individuals who are already identity committed and increased rates of

profile pictures suggests that individuals are not cycling through profile pictures in an effort to

'try on' different identities; rather, these users instead may be demonstrating that they already

have the ego-strength necessary to essentially flaunt their already established identities.

Interestingly, outside of the traditional association with age, no findings were established related

to the four categorical identity statuses regarding profile picture cycling. As this research has

provided some insight into the displaying of profile pictures among those who are identity

committed, future research should also focus on providing more nuanced findings pertaining to

the specific identity status categories.

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Appendix A: Tables and Figures

Table 1

Study 1 Correlations Among Major Hypotheses Study Variables

	Age	Profile Pic Cycling
Age	-	-.133**
Profile Pic Cycling	-.133**	-
EIPQ Diffused	-.177**	-.018
EIPQ Moratorium	.055	-.065
EIPQ Foreclosed	-.029	.025
EIPQ Achieved	.156**	.077
EIPQ Commitment	.085	.116*
TIPI Openness	.015	.096*
TIPI Extraversion	-.011	.210***
SITA Individuation	-.091*	-.116*

Notes: * $p < .05$., **$p<.01$ *** $p < .001$.

Popular Social Networking Website Usage Trends
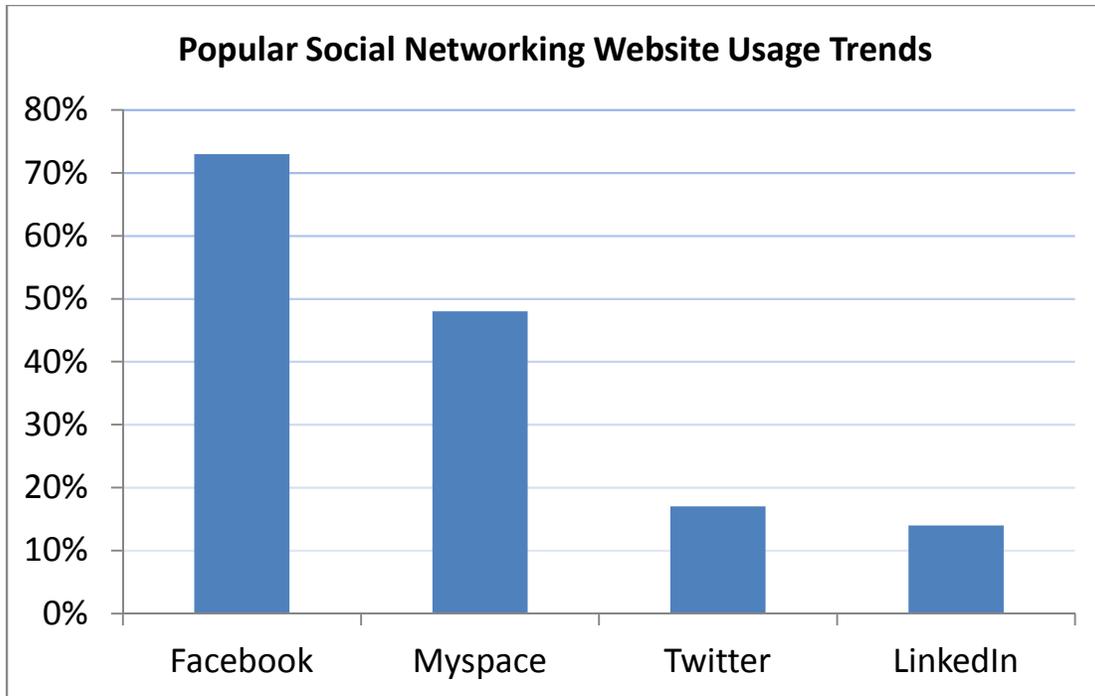
Figure 1. Social Networking Website Usage Trends in 2010 (Lenhart, Purcell, Smith, & Zickuhr, 2010).
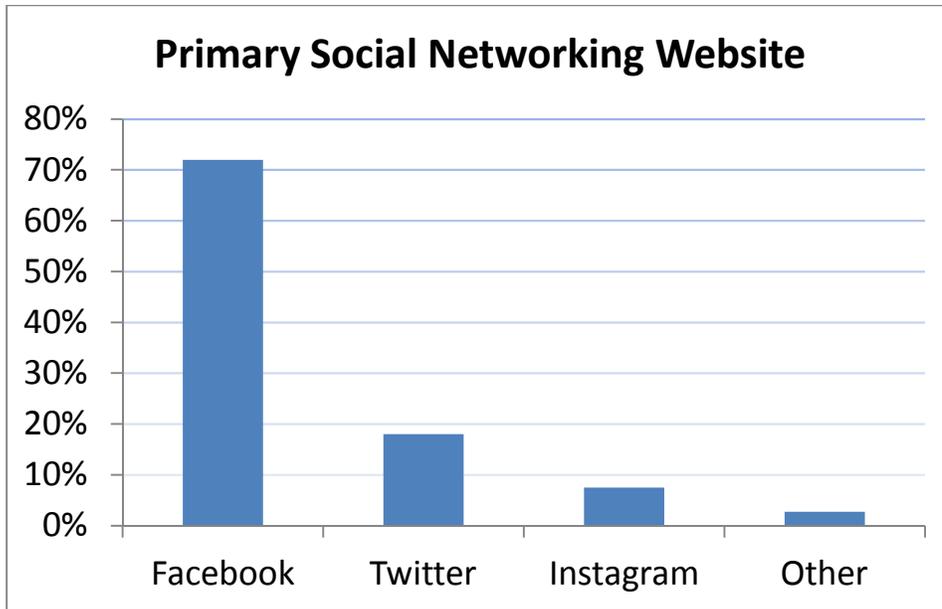
Figure 2. Study participant's 'primary' social networking website selection.
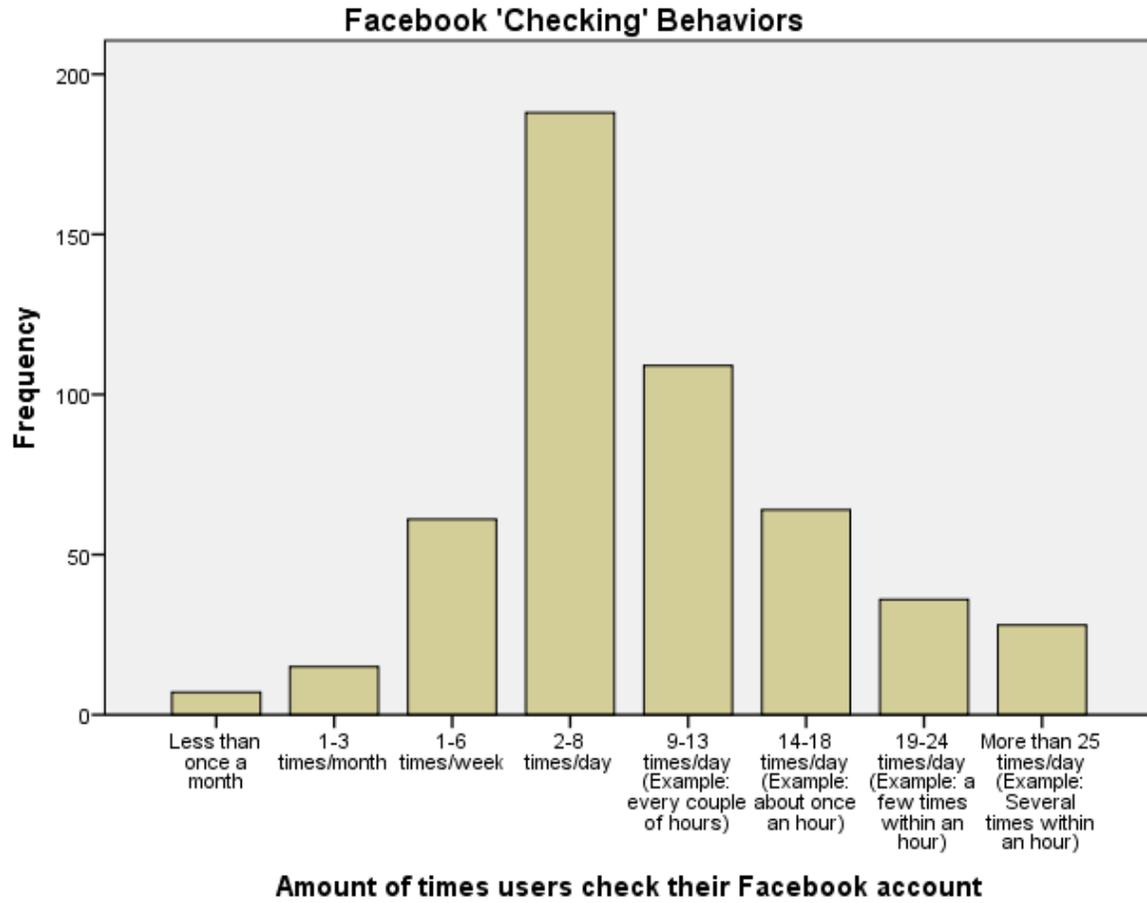
Figure 3. Facebook 'Checking' Distribution.
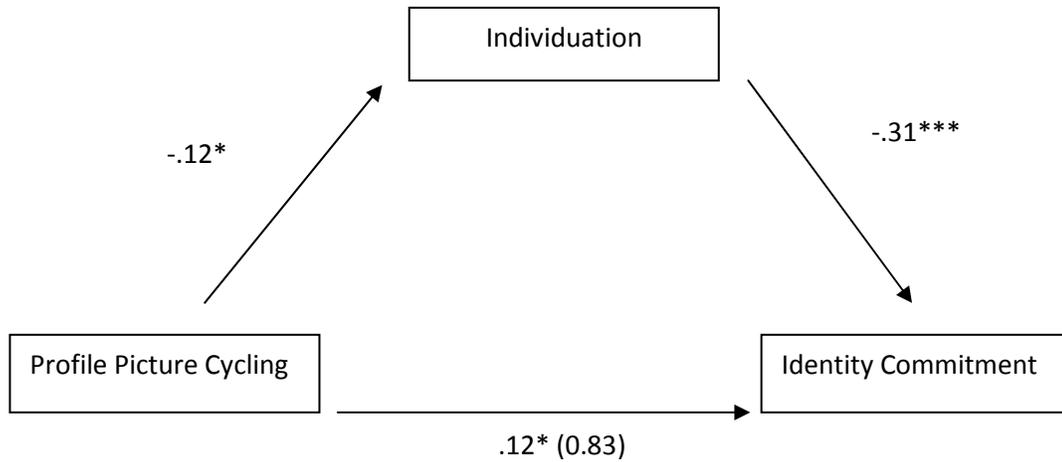
Figure 4. Individuation fully mediates relationship between profile picture cycling and identity commitment.

Notes: Standardized regression coefficients for the relationship between profile picture cycling and identity commitment as mediated by individuation. Standardized regression coefficient between profile picture cycling and identity commitment controlling for individuation is in parentheses.

* $p < .05.$, **$p<.01$ *** $p < .001$.

```
                        ┌─────────────────────┐
                        │     Extraversion     │
                        └─────────────────────┘
      .21***          ╱                         ╲          .21***
                    ╱                             ╲
                  ╱                                 ╲
  ┌──────────────────────┐              ┌──────────────────────┐
  │ Profile Picture Cycling │──────────▶│ Identity Commitment │
  └──────────────────────┘              └──────────────────────┘
                        .12* (0.131)
```
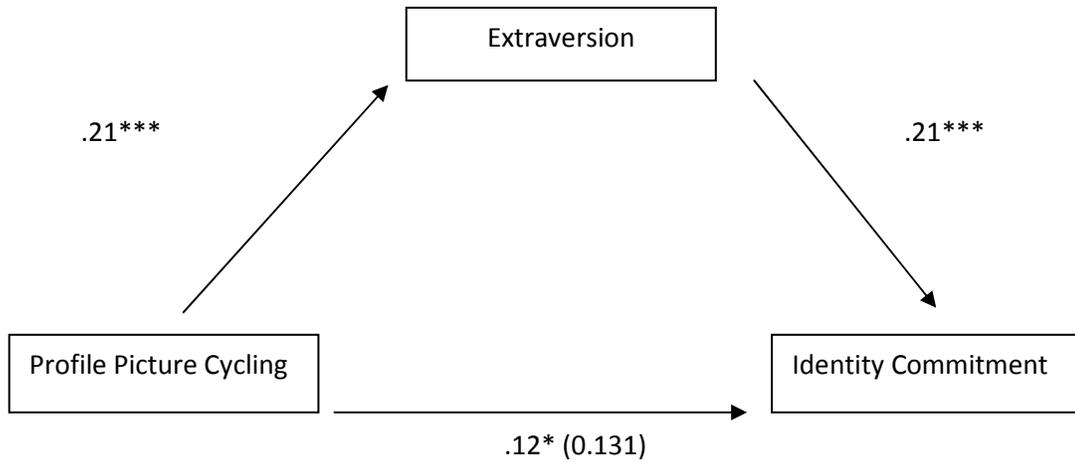
Figure 5. Extraversion fully mediates relationship between profile picture cycling and identity

commitment.

Notes: Standardized regression coefficients for the relationship between profile picture cycling

and identity commitment as mediated by extraversion. Standardized regression coefficient

between profile picture cycling and identity commitment controlling for extraversion is in

parentheses.

* $p < .05.$, **$p<.01$ *** $p < .001.$

Appendix B:

Measures

HLCS

Leaving home, or separating from parents, and becoming an adult means different things to different people. Below are issues related to home leaving and becoming an adult. Please check the box that corresponds to the degree to which the statement reflects your **current** situation.

Does not apply to me at all			Somewhat applies applies to me			Applies to me very much	
1	2	3	4	5	6	7

1. I feel like an adult.

2. I am independent.

3. I have a job.

4. I no longer receive financial support from my family.

5. I have to take care of myself (e.g. cook, laundry, etc.).

6. I make my own money.

7. I go back home each summer.

8. I have moved into an apartment.

9. I do not go home as often.

10. I feel mature enough.

11. I have to do things for myself.

12. I am financially independent.

13. I make my own decisions.

Facebook self-presentation questionnaire

    i.   Do you consider Facebook your primary or most used social networking site?
1. If no…please select primary SNS (Twitter, LinkedIN, Instagram, MySpace, Flickr, or other:_____)

  ii. Do you have Facebook access on your mobile phone?
1. Yes
2. No

  ii. How often do you look at / check Facebook?
a. Less than once a month
b. 1-3 times / month
c. 1-6 times / week
d. 2-8 times / day
e. 9-13 times / day (Example: every couple of hours)
f. 14-18 times / day (Example: about once an hour)
g. 19-24 times / day (Example: a few times within an hour)
h. More than 25 times / day (Example: Several times within an hour)

 iii. When using Facebook from a computer, how long do you typically browse?
a. Less than 5 minutes
b. About 30 minutes
c. About an hour
d. 2-3 hours
e. More than 3 hours

  iv. Are you Facebook friends with your parents?
a. Yes
b. No

   v. Do authority figures in your life (such as parents, teachers, employers, etc) have unrestricted access to your Facebook page?
a. Yes
b. No
c. N/A

Facebook Measure Continued…

Instructions: To answer the next question, you will need to log into your Facebook account. Click here to open Facebook. For your convenience, this will open in a new window and is completely separate from this survey.

 1) Read the following questions
2) Obtain the answers from your Facebook page
3) Come back to this survey to type in your responses

During the last YEAR (between January/2012 - January/2013), how many different profile pictures & cover photos did you upload? *

Go to your main page, click on PHOTOS ---> click on ALBUMS ---> click on PROFILE PICTURES. Add up how many different profile pictures you uploaded in the months between January/2012 & January 2013! Don't forget to also include your "cover photos" located in the COVER PHOTOS album. (Click on the pictures to view the upload dates.)

January, 2012:
February, 2012:
March, 2012:
April, 2012:
May, 2012:
June, 2012:
July, 2012:
August, 2012:
September, 2012:
October, 2012:
November, 2012:
December, 2012:
January, 2013:

    2.   In general, how many times do you change your Facebook profile picture &/or cover pictures?
            1.   More than once a day
            2.   Once a day
            3.   Once a week
            4.   A couple times a month
            5.   A couple times a year
            6.   Never

Ten Item Personality Inventory - (TIPI)

Here are a number of personality traits that may or may not apply to you. Please indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree

I see myself as:

1. _____ Extraverted, enthusiastic.

2. _____ Critical, quarrelsome.

3. _____ Dependable, self-disciplined.

4. _____ Anxious, easily upset.

5. _____ Open to new experiences, complex.

6. _____ Reserved, quiet.

7. _____ Sympathetic, warm.

8. _____ Disorganized, careless.

9. _____ Calm, emotionally stable.

10. _____ Conventional, uncreative.

TIPI scale scoring (''R'' denotes reverse-scored items): Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness; 3, 8R; Emotional Stability: 4R, 9; Openness to Experiences: 5, 10R.

SITA: Separation-Individuation Test of Adolescence

Listed below are a number of statements which describe various feelings, attitudes, and behaviors that people have about their relationships with others. Read each statement and then check the box that corresponds to the letter that best reflects the extent to which:

>A = the statement is *always true* for you or you *strongly agree* with it
>B = if the statement is *usually true* for you or you *generally agree* with it
>C = if the statement is *sometimes true* for you or you *slightly agree* with it
>D = if the statement is *hardly ever true* for you or you *generally disagree* with it
>E = if the statement is *never true* for you or you *strongly disagree* with it

1. Sometimes my parents are so overprotective I feel smothered.

2. I can't wait for the day I can live on my own and am free from my parents.

3. Most parents are overcontrolling and don't really want their children to grow up.

4. I often feel rebellious toward things my parents tell me to do.

5. My parents keep close tabs on my whereabouts.

6. I feel my parents' roles restrict my freedom too much.

7. I am greatly looking forward to getting out from under the rule of my parents.

8. Sometimes it seems that people really want to hurt me.

9. If I told someone about the troubles I have, they would probably not understand.

10. My parents seem much more concerned about their own plans than they do about mine.

11. Even with my good friends I couldn't count on them to be there if I really needed them.

12. My parents seem very uninterested in what's going on with me.

13. It sometimes seems that my parents wish they hadn't ever had me.

14. It's hard for me to really trust anyone.

15. No one seems to understand me.

16. If I let myself get close to someone else I would probably get burned.

17. Sometimes it seems my parents really hate me.

(SITA Continued…)

18. As long as I don't depend anyone, I can't get hurt.

19. At home, I seem to be "in the way" a lot.

20. Being alone is a very scary idea for me.

21. I often don't understand what people want out of a close relationship with me.

22. I worry about death a lot.

23. Sometimes I think how nice it was to be a young child when someone else took care of my needs.

24. I frequently worry about being rejected by my friends.

25. I frequently worry about breaking up with my boyfriend/girlfriend.

26. I am quite worried that there might be a nuclear war in the next decade that would destroy much of this world.

27. The teacher's opinion of me as a person is very important to me.

28. I feel overpowered or controlled by people around me.

29. When I think of the people that are most important to me I wish I could be with them more and be closer to them emotionally.

30. Before I go to sleep at night, I sometimes feel lonely and wish there were someone around to talk to or just to be with.

31. The idea of going to a large party where I would not know anyone is a scary one for me.

32. I worry about being disapproved of by my teachers.

33. I would get upset if I found out my teacher was mad at me or disappointed in me.

Ego Identity Process Questionnaire

+C (1) I have definitely decided on the occupation I want to pursue.

+C (2) I don't expect to change my political principles and ideals.

+E (3) I have considered adopting different kinds of religious beliefs.

−E (4) There has never been a need to question my values.

+C (5) I am very confident about what kinds of friends are best for me.

−E (6) My ideas about men's and women's roles have never changed as I became older.

+C (7) I will always vote for the same political party.

+C (8) I have firmly held views concerning my role in my family.

+E (9) I have engaged in several discussions concerning behaviors involved in dating relationships.

+E (10) I have considered different political views thoughtfully.

−E (11) I have never questioned my views concerning what kind of friend is best for me.

−C (12) My values are likely to change in the future.

+C (13) When I talk to people about religion, I make sure to voice my opinion.

−C (14) I am not sure about what type of dating relationship is best for me.

−E (15) I have not felt the need to reflect upon the importance I place on my family.

−C (16) Regarding religion, my beliefs are likely to change in the near future.

+C (17) I have definite views regarding the ways in which men and women should behave.

+E (18) I have tried to learn about different occupational fields to find the best one for me.

+E (19) I have undergone several experiences that made me change my views on men's and women's roles.

+E (20) I have consistently re-examined many different values in order to find the ones which are best for me.

−C (21) I think what I look for in a friend could change in the future.

+E (22) I have questioned what kind of date is right for me.

+C (23) I am unlikely to alter my vocational goals.

+E (24) I have evaluated many ways in which I fit into my family structure.

+C (25) My ideas about men's and women's roles will never change.

−E (26) I have never questioned my political beliefs.

+E (27) I have had many experiences that led me to review the qualities that I would like my friends to have.

+E (28) I have discussed religious matters with a number of people who believe differently than I do.

−C (29) I am not sure that the values I hold are right for me.

−E (30) I have never questioned my occupational aspirations.

−C (31) The extent to which I value my family is likely to change in the future.

+C (32) My beliefs about dating are firmly held.

C indicates commitment; E indicates exploration; + indicates a positively-worded item; − indicates a negatively-worded item.

<u>The Demographic Information Form</u>

Please tell us about yourself.

1. **Gender**
   o   Male

   o   Female

2. **Age** _____

3. **How would you describe your ethnic background? (check all that apply)**

   o   Asian American
   o   Black/African American
   o   Hawaiian or Pacific Islander
   o   Hispanic/Latino
   o   Middle Eastern
   o   Native American
   o   White/Caucasian
   o   Mixed Race _____

4. **Current YEAR in school:**
   Select "N/A" if you are not a college student

   o   Freshman
   o   Sophomore
   o   Junior
   o   Senior
   o   Graduate / Professional Student
   o   N/A

5.   **What was your GPA last semester?**
6.   **Where do you currently live (City, State)?**
7.   **Where do your parents live (City, State)?**

CHAPTER 3: STUDY 2: CUTTING THE INVISIBILE, YET TETHERING CELL PHONE CORD: IS THE DEVELOPMENTAL PROCESS OF INDIVIDUATION STIFLED DUE TO CONSTANT CONNECTIVITY?

An Unexpected Dedication

While shopping for a new cell phone, I overheard a conversation between a young women and a cellular phone sales agent. She was there to discuss her "account options." This study is dedicated to her, and those in a similar plight. Thank you for inspiring me to continue doing research in this topic area.

Customer: I'd like to be removed from my current plan, and get my own cell phone number.

Agent: Well, ma'am…you're on our family "Share Everything" plan. The primary account holder would have to come in and approve the contract break. However, I can assure you that the "Share Everything" plan is saving your family money.

Customer: *Aggravated* I don't want to "Share Everything!"

ABSTRACT

Current developmental theory suggests that the task of individuating from parents has extended

from adolescence into the emerging adulthood years, especially given that the college years serve

as a functional marker of individuation. Based on the theoretical premise that individuation is a

multifaceted construct dealing with one's psychological ability to become autonomous, while

remaining emotionally connected to parents, this project sought to examine the ways in which

cell phone usage may be related to individuation. Specifically, associations between

communication with parents via cell phones and individuation was explored. Administered

online with a variety of accompanying measures, this study required participants to report

concrete data from their cell phone call logs. The study sample included 18 to 25-year-old

emerging adults (N=428), indicating Midwest, Southeast, and West coast geographic locations.

Several findings on the interactions between age, proximal distance, attachment, autonomy, cell

phone communication and individuation are presented. Although study effect sizes were

minimal, the findings provide a platform for further exploration into the relationship between

social technologies and individuation.

Introduction

      With the popularity of cell phones, most college students now have the ability to constantly remain electronically tethered to friends and family. Described by Ling and Yttri (2006) as a, "metaphorical umbilical cord," cell phones afford parents the ability to remain connected, while permitting freedom regarding physical distance. When entering post-secondary academic institutions, emerging adults face many new transitions and challenges (Lefkowitz, 2005), some of which may induce the desire or need to contact parents. For many young adults, the transition to college serves as a functional and distinct marker of individuation, an important developmental task faced during late adolescence and emerging adulthood. Although many individuals will meet developmental tasks easily, others have noticeable difficulty.

      Previous research has shown the developmental importance of individuation during the college years (Kenyon & Koerner, 2009; Tinto, 1997). One basic theoretical concept of individuation posits that emerging adults are attempting to establish independence, and begin a life that is separate from parents or primary caregivers. However, with technological advances and the popularity of cell phones, connectivity to parents may impede upon one's ability to establish a healthy level of separateness. As illustrated in the dedication of this study, family dynamics and/or business systems may not always align with the developmental needs of young adults. Cellular phone companies have encouraged the sustaining of these family connections through cell phone packaging plans, proposing that families can "stay connected" and "share everything." A business-focused case study (McQuade & Khanfar, 2010) highlights the 'convincing' efforts of a customer who wants her entire family to "keep in touch" with each other more easily by enrolling them onto her cell phone plan, in spite of initial hesitance from the family. Due to various dynamics at play, it is possible that individuals enrolled in family plans

may especially feel that their cell phone is a source of accountability, or privacy intrusion. Regardless of whether an individual desires to be on a family or individual plan, the cellular phone market among adolescents (12-17) and young adults (18-24) has demonstrated tremendous growth (Charny, 2002; Wrolstad, 2002). The Pew Research Center, an organization dedicated to reporting current trends in technology, reported that 93% of adults between 18-29 years of age own a cell phone, along with 75% of teenagers (Lenhart et al., 2010). One of the largest jumps in cell phone ownership was among 12-year olds, up from 18% in 2004 to 58% in 2009 (Lenhart et al., 2010), demonstrating the continued integration of cell phones into people's daily lives – even at a young age.

Research suggests that mobile devices relieve the constraints of physical proximity; and further explains that with the improvement of communicative flexibility (through mobile devices), emerging adults' social interactions with friends and family is increased (Auter, 2007; Quan-Haase, 2007; Thulin & Vilhelmson, 2007). However, despite the physical mobility afforded by cell phone technology, the increase in connectivity does not always have positive outcomes. Braguglia (2011) reported that college students with heightened levels of connectivity interfered with the ability to remain focused in school. Not surprisingly, academic performance was especially disrupted when "bad or upsetting" news was being delivered (Braguglia, 2011). Given these increases in connectivity, potential negative effects on academic performance, and the developmental importance of individuation (Tinto, 1997), it is plausible that college students' abilities to separate themselves from friends and family at home may be affected by high levels of connectivity or close proximity (Beranuy, Oberst, Carbonell, & Chamarro, 2009; Chen & Katz, 2009; Lee, Meszaros, & Colvin, 2009).

Such issues with increased communicative connectivity via cell phones may indeed have an effect on the developmental task known as individuation. As mentioned above, one basic theoretical concept of individuation posits that emerging adults are attempting to establish independence, and begin a life that is separate from parents or primary caregivers. Initially associated with infancy, the ability to recognize oneself as 'separate' from your caregiver is the earliest form of intrapsychic separateness (Blos, 1979; Mahler, 2000). However, this separateness also occurs again in relation to the child developing the intrapsychic separateness which will enable them to ultimately individuate from their parents as young adults (Blos, 1979). While the process of individuation remains central for emerging adults, it is important to note that a complete departure (be it physical and/or emotional) is not the primary goal of individuation. More relational in nature, another basic theoretical concept of individuation surrounds one's ability to manage their anxieties surrounding separation issues (Allison & Sabatelli, 1988; Levine et al., 1986). The construct of individuation has been described as "multifaceted" because it encompasses one's psychological ability to emotionally 'separate' and 'connect,' along with more functional indices of separateness (e.g., autonomy;(Hoffman, 1984). Numerous researchers and theorists have agreed that staying connected to parents, while still demonstrating a degree of separateness and independence is crucial (Arnett, 2007; Gentzler et al., 2011; Grotevant & Cooper, 1986). When this balance between separateness and closeness is disturbed (especially during periods of transition), various relational outcomes may occur. For example, especially when the young adult still resides with the parent, individuation issues may manifest primarily as conflict (Joseph P. Allen et al., 1996; Aquilino, 1997; Flanagan & Schulenberg, 1993). However, even when young adults no longer reside with their parents, these issues may manifest primarily as a limit-setting problem; wherein the emerging adult limits their

parent's degree of daily involvement and contact (O'Connor, Allen, Bell, & Hauser, 1996). Late

adolescence and emerging adulthood in this regard may be rather unsettling for parents as their

children have greater power to regulate communication and contact. From a relational

perspective, the inability to establish or maintain a healthy level of separation-individuation may

prevent the young adult from being able to fully separate from their parents, thus creating the

possibility for psychological enmeshment (Joseph P. Allen et al., 1996).

Parental Attachment

One fundamental construct that appears to be directly related to issues of separation-

individuation is psychological attachment. A secure psychological attachment is created when a

physical representation of an attachment figure (typically a parent or caregiver) transforms into

an internal mental representation of that attachment figure (M. D. S. Ainsworth et al., 1978).

During this complex intrapsychic process, the child's attempts at creating an internal working

model may become disrupted, resulting in the formation of more maladaptive attachment types.

An interesting addendum to theories on attachment development was made by researcher Mary

Main who demonstrated that insecurely attached adults were more likely to have insecurely

attached children (Hesse, 1999). Thus, parental attachment is not simply a one-way intrapsychic

internalization process completely dependent upon the developing child, but it is a dynamic

process that can be affected by the parent's psychological states being transferred to their child.

Research indicates that secure parental attachment may allow individuals to achieve

developmental tasks more easily (M. D. S. Ainsworth et al., 1978). The achievement of these

developmental tasks fosters healthy development from infancy through adulthood (Lapsley,

Rice, & FitzGerald, 1990; McCarthy, Moller, & Fouladi, 2001). Research has also shown that

those with secure parental attachments have a more solid foundation for achieving the developmental tasks they will face throughout their life span (Sroufe, 1979). As individuals reach developmental milestones and move forward through transitional periods, their attachment systems are typically activated (M. D. S. Ainsworth et al., 1978). One major transitional period for some emerging adults is the transition to college. It has been shown that college students who report higher levels of parental attachment tend to respond to the transition with less distress (Hiester, Nordstrom, & Swenson, 2009), and more positive adjustment outcomes (Larose & Boivin, 1998; Mattanah et al., 2004; Schultheiss & Blustein, 1994). It has also been suggested that the amount to which college students' turn to their parents for healthy psychological connection and/or support is directly related to having a secure attachment structure in place (Kenny, 1987).

Parental attachment is considered to be a relatively stable construct (Fraley, 2002; Levy, Blatt, & Shaver, 1998). One study of parental attachment and psychological functioning among college students found no significant changes in parental attachment scores over time. As these scores were obtained approximately ten weeks apart from each other, Hiester et al. (2009) concluded that measures of parental attachment are relatively stable across the first semester of college. Other studies have demonstrated a much greater pattern of stability, suggesting that parental attachment structures are stable from infancy through adulthood (Fraley, 2002; Levy et al., 1998). However, it is important to note that attachment structures are not completely static. Environmental disruptions (e.g. - attending a new school or moving into a new home) and emotional disturbances (e.g. – bereavement for parental loss) may disrupt an existing attachment structure (Kagan, 1996; Lewis, Feiring, & Rosenthal, 2000; Thompson, Lamb, & Estes, 1982; Vaughn, Egeland, Sroufe, & Waters, 1979; Waters, Wippman, & Sroufe, 1979). Because

attachment systems are typically activated during times of change or transition (M. D. S. Ainsworth et al., 1978), the balance between how much an individual uses or alters their existing parental attachment likely varies. This variance may account for differences regarding why some individuals progress through transitional periods with ease, and others struggle. Nevertheless, it is still the case that those with secure parental attachments are more likely to demonstrate stability in their attachment structures and more positive psychological outcomes (Fraley, 2002; Levy et al., 1998; Mattanah et al., 2004). Conversely, individuals without good amounts of secure attachment may experience transitional periods of separation-individuation as anxiety provoking due to the anticipation of complete abandonment. Others who have developed a more avoidant style of interaction may experience internal conflict over their preference for emotional distance, paired with the need for establishing close relationships (M. D. S. Ainsworth et al., 1978; Hazan & Shaver, 1987).

Typically occurring during emerging adulthood when individuals are developmentally preparing to establish themselves as autonomously individuated, the college years act as a functional transitional period that can activate these attachment structures. Individual characteristics have been shown to mediate the relationship between parental attachment and college adjustment (Mattanah et al., 2004; M. Wei, Russell, & Zakalik, 2005). For example, an important component of adjustment to college is the ability to form new friends. This ability has been positively associated with students who have a secure parental attachment (Mattanah et al., 2004). Mattanah, Hancock, and Brand (2004) also found that students' feelings of autonomy mediated the relationship between parental attachment and college adjustment, demonstrating the importance of individuation and agency. These findings suggest that the relationship between

parental attachment and college adjustment may also be influenced by other factors, such as proximal distance from parents and connectivity via cell phone use.

Proximal Distance from Home

Much of the literature on distance from home and the transition to college focuses on the psychological phenomenon of "homesickness." Tognoli (2003) found that the construct of homesickness was significantly more present in college students who reported greater proximal distance between themselves and their parents. Further, it was demonstrated that these students also report more visits back home, despite the greater proximal distance (Tognoli, 2003). Several studies indicate that college students are prone to experience more difficulties with their transition to college if the experience of being "homesick" is present (Beck, Taylor, & Robbins, 2003; Mooney, Sherman, & Presto, 1991; Tognoli, 2003). Thus it is likely that proximal distance from parents has a moderating effect of topics related to successful college transition.

STUDY RATIONALE

The existing literature provides good amount of research on the developmental task of individuation. As a result of its developmental nature, many studies on individuation have examined adolescent, and more recently, emerging adulthood age ranges. For youth who matriculate into a post-secondary education, the transition to college can serve as one distinct marker of individuation. While it can be considered a sample of convenience, the college student population is ideal for examining the developmental task of individuation. For many young adults who leave home for school, college may become the time in which their novel experiences with a geographic, proximal independence from their parents will translate into a more mature, psychological independence.

From the pioneering work of Bolby, Ainsworth, and Grotevant, we understand quite a bit about intrapsychic attachment structures, and how they can translate to one's ability to demonstrate a healthy level of separation-individuation. Because separation-individuation deals with the delicate balance of remaining emotionally connected to parents, while establishing a degree of separateness, understanding how families negotiate this task continues to be an important area of research. Today, many families stay connected by the use of cell phones, and consider cell phone use central to their ability to remain "connected" with each other (R. Wei & Lo, 2006). Historically, when young adults left home for college, daily communication with parents was uncommon due to the impracticalities surrounding accessibility and expense. Some research has started exploring college student's perceptions of cell phone communication with parents (Green, 2007); however, these two main areas of research have yet to be bridged under a developmental lens. Based on the demonstrated importance of establishing a sense of autonomy and separation-individuation from parents (Joseph P. Allen & Hauser, 1996; Kenyon & Koerner, 2009; Mattanah et al., 2004; Tinto, 1988), and research demonstrating that cell phone connectivity with parents can have negative outcomes (Braguglia, 2011), it may be the case that one's ability to successfully individuate from their parents is associated with their levels of connectivity via cell phones.

THE CURRENT STUDY: SUMMARY & HYPOTHESES

In summary, the literature details the significance of individuation as a normative, developmental task associated with establishing a life separate from one's parents or caregivers. Transitioning through the college years, which traditionally encompass the emerging adulthood years (18-25), can serve as a distinct marker of individuation – both physically (an increase in proximal distance from parents) and psychologically (experiencing a sense of 'freedom' and

autonomy). However, with technological advances and the popularity of cell phones, connectivity to parents may impede upon one's ability to establish a healthy level of separateness.

The current study is an empirical investigation that seeks to understand how the developmental task of individuation may be related to cell phone communication with parents. Further, this study hopes to explore specific ways in which cell phone communication with parents may impact have impacted the developmental task of individuation. By gaining insight into levels of maladaptive separation-individuation, patterns associated with general functioning, communication with parents, and related constructs (e.g., attachment, autonomy, and proximal distance) will be examined. Overall, the major hypothesis of the proposed project is that indices of individuation will be associated with the participant's level cell phone connectivity with their parents, with additional explanatory power being provided by related constructs.

The following questions (denoted by Q1, Q2, etc.) with their applicable hypotheses (denoted by H1, H2, etc.) were proposed to assess study premises:

Q1: Is individuation in emerging adulthood associated with general functioning and mental health?

> H1: It is hypothesized that individuals who are more individuated will demonstrate better general functioning and mental health outcomes.

Q2: Does individuation and communication with parents via cell phones change with participant age?

H2: It is hypothesized that levels of talking and texting with parents will have an inverse relationship with age – such that as participants' age, amounts of talking and texting will decrease.

H3: It is hypothesized that levels of individuation will have a positive relationship with age – such that as participants age, amounts of individuation will increase.

Q3: In what way is individuation in emerging adulthood related to communication with parents?

H4: It is hypothesized that increased levels of talking and texting via cell phones with parents will be associated with decreased amounts of healthy individuation.

Q4: Does attachment have a moderating effect on the relationship between cell phone usage and individuation?

H5: It is hypothesized that attachment will have a moderating effect on cell phone use and individuation – such that at high levels of attachment, the main effect of cell phone usage onto individuation will be lowered or non-significant. Conversely, at low levels of attachment, the main effect will also be lowered or non-significant.

Q5: Does proximal distance (Google mileage) from home have a moderating effect on the relationship between cell phone usage & individuation?

H6: It is hypothesized that proximal distance from home will have a moderating effect on the relationship between cell phone usage and individuations – such that at high levels of Google mileage, any negative relationship between the main effect of cell phone usage and individualization will be lowered or non-significant.

Q6: Does autonomy moderate the relationship between cell phone use and individualization?

H7: It is hypothesized that autonomy will have a moderating effect on the relationship between cell phone usage and individualization – such that at high levels of autonomy, any negative relationship between cell phone usage and individuation will be lowered or non-significant.

Q7: Does cell phone usage mediate the relationship between autonomy and individuation?

H8: It is hypothesized that a full or partial mediation will occur – such that the relationship between autonomy and individuation will be transformed into a more powerful and explanatory model.

METHOD

PARTICIPANTS

Overall database demographics

Participants for the current project were selected from this study's overall database which included data from individuals who qualified for the online study based on the general criteria for study participation: must be over 18 years old, have an active Facebook account, and use a cell phone. Although the title of the study, "Technology & Emerging Adulthood" may have indicated a maximum age for participation, no age limitation was provided. Only one potential participant contacted researchers to inquire about an age maximum, and was invited to take the study regardless of age.

The survey was accessed 788 times, and usable data was obtained from 510 different participants (as defined from unique IP addresses) who qualified for the study. Overall, database participants included those between the ages of 18-57, M=21.29 (SD = 3.87), 28% minority, and

70% female. The majority of participants were college students at a large Southeastern university; however, due to online and email listserv recruitment techniques, a variety of participants indicated Midwest, Southeast, and West coast locations. The sample was comprised of 84% undergraduate students, with 9% identifying as graduate or professional students, and 7% indicated non-student status.

Current study demographics

Inclusion criteria for the current study were those between the ages of 18-25 who self identified as a Freshman, Sophomore, Junior, or Senior currently enrolled in college. After inclusion criteria filters were placed, participant demographics for this study ultimately were 428 emerging adults aged 18-25, $M = 20.09$ ($SD = 1.48$), 20% minority, and 71% female. Responses from Freshmen, Sophomores, Juniors, and Seniors were adequately represented at 30%, 25%, 23%, and 22%, respectively. Among the sample, these students reported a mean GPA of 3.2 ($SD = 0.60$).

PROCEDURE

Online Survey creation

As suggested by Dillman et al. (1998), particular attention was made in the initial creation of this online study, such that it was presented via a user-friendly interface which was easy to access, and select &/or enter responses, and was. Data was collected via the secure online servers provided by Qualtrics (a data collection website commonly utilized in the social sciences). Due to the amount of items administered, and the average pilot completion time being 30-60 minutes, each portion of the survey was displayed on a new webpage in order to not visually overwhelm participants. Motivating messages (e.g., "Only 3 more screens

remaining…") were also placed to notify participants of their progress, and encourage full participation.

Participant recruitment

Numerous recruitment strategies were employed, including both online and in-person recruitment. Online recruitment primarily took place on Facebook via the creation of an 'event.' Members of the administering research team created these Facebook events, posted invitations as 'status updates,' and also encouraged others to disseminate the link to the survey. Email listservs were also utilized for recruitment efforts, including several invitations being sent to research colleagues at various universities and colleges in the Midwest, Southeast, and West coast regions. In social media fashion, these listservs and forwarding emails were used to extend the invitation for participation. Online recruitment efforts also took place via the University of Tennessee's psychological sciences research participation website in which students can fulfill research requirements by participating in active projects. Because most of the students recruited from the University of Tennessee's research participation website were Freshmen and Sophomores (due to the introductory nature of most classes that incorporate research participation), special effort was made to balance the subject pool by actively recruiting Juniors and Seniors (or individuals over 20 years old in general). Researchers visited upper-level courses and transparently discussed the need for older participants, especially given the developmental nature of the survey. All individuals interested in participating provided their email to the researcher, and were promptly sent the link to participate in the study.

Survey Experience

Participants were invited to take a one-time, online survey on technology and emerging adulthood. Potential participants were instructed that the study, comprised of various psychological measures and questionnaires, would take approximately 30-60 minutes to complete. Before obtaining access to any survey material, participants were first led through the confidentiality and informed consent page (in which an overview of potential risks, benefits, and incentives were detailed). Participants were notified that at the conclusion of the study, they would be invited to enter a raffle for a $25 e-gift card to Target.com. Entry into the raffle was voluntary, and served as an incentive for participation in this research project. Because it was projected that most participants would likely be tech-savvy users, e-gift cards were specifically chosen as an option which may be especially desirable for this audience. Keeping in line with the nature of this fully online study, redeemable e-gift cards were also especially appropriate for this project as it prevents researchers from requiring participants to provide their physical mailing address, or pick-up their gift in-person.

Participants were instructed that the study was completely voluntary, and that they could decline or terminate participation at any point. Participants who wanted to provide their consent were instructed to click the "next" button at the bottom of the page. Participants who did not consent to the study were instructed to not continue, and to exit the study completely by closing their web browser.

As the survey was completely self-directive and available 24hrs/day, participants were able to independently access the research study at a time that was convenient for them. To begin the survey, participants were initially prompted to provide basic demographics (i.e., age, gender,

race, grade, highest education obtained, city/state, etc.); however, the bulk of the survey

consisted of reporting information pertaining to their communicative technology usage, and

completing the measures & assessments detailed in the 'Measures' section below.

Cell phone data collection

Participants were instructed to open their cell phone to their recent call & text log to

answer the questions in the cell phone section regarding communication with their parents.

Participants were asked two basic screening questions to determine if all items in the section

were applicable. For example, if the participant indicated that they did not use their cell phone to

communicate with their Father, the Qualtrics survey was set-up to allow them to bypass all

questions pertaining to entering data related to communication with their Father. As applicable,

participants were prompted to report detailed information on the amount of times they

communicated via phone call and text within the last two (2) weeks. General information

regarding who typically initiates communication, and how long calls last was also obtained. .

Data management

Special efforts were made to ensure that the final 588 data entries represent valid data, with

each of those entries being a new participant. Although participants theoretically could have

taken the survey more than once by accessing the survey from different computers

(circumventing the IP address restriction), study incentives were minimal, and no repeat email

submissions (required for the gift card raffle) were present. Although these are good indicators of

sound data collection, it is still commonly expected (especially with online data collection) that a

minority of participants likely did not take the survey as intended for a variety of reasons (e.g., in

a hurry, primary goal is to obtain the incentive, distracted by other stimuli, curious about content,

etc.). Osborne and Overbay (2012) provide a detailed review of best practices in data cleaning, various types of outliers (e.g., data entry errors, purposeful misreporting, etc.), and general information regarding the possible negative effects from maintaining erroneous data. Because data is typically downloaded directly from the data collection website into a statistics software program when conducting online studies, data cleaning is not particularly necessary to address data-entry errors. Despite this advantage, data cleaning protocols are typically still necessary regardless of how much upfront care was taken to ensure the collection of sound data (Selm & Jankowski, 2006).

Applicable preliminary safeguards and exclusion factors pertaining to the raw dataset were put in place: survey completion time improbable (i.e., completing the entire study in less than 15 minutes), and/or data showed a clear violation of directions (i.e., acquiescing or yea/nay-saying, invalid measure results, and inconsistent or unattainable response combinations). For example, participants who checked "C" for all items in the study, individuals who answered similar questions in inconsistent pattern (e.g., indicated they "never" change their profile picture, but entered various profile picture upload numbers).

Unusable data largely came from survey "hits," in which individuals only opened, but did not complete the survey. Most "completed" surveys that could be excluded due to the 'clear violation of directions' safeguard, also met the 'survey time was less than 15 minutes' exclusion criteria. Overall, this duplicity of error suggest that the safeguards and exclusion factors likely adequately captured participants who haphazardly acquiesced through the study, while maintaining data from participants who purposefully engaged in the study (regardless of whether parts of their data could be considered an 'outlier' for other reasons). The primary goal was only to identify and delete incomplete and/or erroneous data, not to normalize, restrict, or transform

the raw data in any way. This goal was met by following the safeguards and exclusion criteria detailed above.

MEASURES

The Demographic Information Form

Created for this project, this form asked common demographic questions including participants' gender, age, ethnicity, academic year, GPA, etc. Also included within this form were questions to assess proximal distance between parent and child. To assess, participants indicated their current geographic location (city, state), and then also entered the geographic location (city, state) for their parent/s. A Google® mileage variable was created by calculating the difference of mileage between the cities. If a participant entered the same city & state for both themselves and their parent/s, the calculated difference score was 0.

Cell Phone questionnaire

Created for this project, this questionnaire accessed general cell phone usage between participants and their parents. Participants were asked to complete this brief questionnaire by referring to their phone's data logs. An example question included, "Phone usage with your FATHER – In the last TWO WEEKS, count up the number of times you communicated by Phone calls." This questionnaire assessed number of phone calls, text messages, and video chats between participants and their parent/s. Participants also reported general information regarding whether their parents called them more often, or if they called their parents more often.

Home Leaving Cognitions Scale: HLCS (Moore, 1987)

Perceived feelings of autonomy from parents were measured by the Home Leaving Cognitions Scale (HLCS; Moore, 1987). Including a total of 13 items, this study administered three of the eight subscales which are especially relevant in assessing emerging adults' level of autonomy from their parents: Self governance, financial independence, and separate residence. Items were rated on a 7-point Likert scale, ranging from (1) *does not apply to me at all* to (7) *applies to me very much*. Example items included: I feel like an adult, I do not go home as often, and I no longer receive financial support from my family. Overall, higher scores on the measure indicate higher levels of autonomy. Given the brief nature of this measure, adequate reliability was obtained with this sample (α=.75).

The Inventory of Peer and Parent Attachment : IPPA (Armsden & Greenberg, 1987)

This 25-item questionnaire assesses perceived attachment to parents and peers. The Peer subscale was not administered for this study. The Mother and Father IPPA subscales were combined to create a singular assessment of Parent Attachment. The measure consisted of three primary subscales: Trust (e.g. "I trust my parents"), Communication (e.g. "I can count on my parents"), and Alienation (e.g. "I feel angry with my parents"). Using a 5-point Likert scale, responses ranged from 1 (*almost never or never true*) to 5 (*almost always or always true*). Appropriate items are reversed scored according to the manual's scoring directions. To obtain a total attachment score, the alienation scale is reversed scored, and the three subscales are summed. Higher scores indicate higher levels of secure attachment. The IPPA is a commonly used measure given to quickly assess

parent attachment structures, and has consistently demonstrated good psychometric properties. Excellent internal reliability was demonstrated with this sample (α=.95).

<u>Separation-Individuation Test of Adolescence</u>: SITA (Levine et al., 1986)

The SITA was administered to assess levels of the developmental construct known as individuation. The SITA is comprised of 103 items when all 6 subscales (Separation Anxiety, Engulfment Anxiety, Rejection Expectancy, Nurturance-Symbiosis, Need Denial, Self-Centeredness, and Healthy Separation) are administered. For this study, the three subscales (Separation Anxiety, Engulfment Anxiety, and Rejection Expectancy) which have previously shown good internal reliability estimates among college student samples (Mattanah et al., 2004) were administered. These three subscales include 33 items, and respectively measure: fear of losing emotional connectivity, lack of autonomy driven by controlling parents or enmeshed parent-child relationships, and emotional callousness (Levine & Saintonge, 1993). Because these subscales focus on problematic individuation patterns, when these subscales are summed, higher scores on this measure indicate more "maladaptive individuation." Indices of 'problematic' individuation have been shown to impact adjustment more than functional independence (e.g. – autonomy) and comparatively demonstrate better psychometric properties than the SITA's own 'healthy' separation' subscale in some studies (K. G. Rice et al., 1990). Overall, the SITA has demonstrated good psychometric properties, and has been shown to have good internal reliability and construct validity (Levine et al., 1986; McClanahan & Holmbeck, 1992). Example items from this measure include, "Being alone is a very scary idea for me" and, "Sometimes I think how nice it was to be a young child when someone else

took care of my needs." Excellent internal reliability of this measure was demonstrated with this sample (α=.92).

Symptom Checklist-90-Revised:SCL-90-R (Derogatis, 1994)

This 90-item measure assesses negative psychosocial symptoms. It is comprised of 9 subscales including somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Participants rate the extent to which they are distressed by each item on a 5-point scale, from 0 = "Not at All" to 4 ="Extremely.". A commonly used clinical and research tool, example SCL items in which participants rate their level of distress are: Headaches, Crying easily, Trouble falling asleep, Thoughts of death or dying, trouble concentrating, and Shouting or throwing things. Greater scores on each subscale, and the 'overall distress' SCL subscale, are indicative of higher levels of psychological pathology. Excellent internal reliability for this measure was demonstrated for this sample (α=.98).

RESULTS

CELL PHONE USAGE ANALYSIS

The vast majority of participants indicated that they use their cell phone to communicate with their parents. An option to indicate "not applicable" was provided to help differentiate between individuals whose parents may be deceased versus a lack of cell phone communication in general. Approximately 97% of participants used their cell phone to communicate with their mothers, while 92% communicated with their fathers. Across all types (calls, texts, and video chats), the overall amount of communication was higher with mothers than fathers (see Table 2). Regarding communication initiation, 22% of participants reported that they typically initiated

conversations with their mother, while a slightly larger percentage (31%) indicated that they typically initiated conversations with their father. On average, the emerging adults within this sample talked with their parents 18 times within a two week period. The duration of those calls typically was around 23 minutes each.

PROPOSED HYPOTHESES RESULTS

For clarity, results are presented respectively in the order they were proposed above with each associated research question and hypothesis:

Q1: Is individuation in emerging adulthood associated with general functioning and mental health?

H1: It is hypothesized that individuals who are more individuated will demonstrate better general functioning and mental health outcomes.

FINDING: As hypothesized, there was a significant positive bivariate correlation between individuation and mental health – such that increased maladaptive individuation patterns were associated with poorer general mental health functioning ($r = .616$, $p < .001$).

Q2: Does individuation and communication with parents via cell phones change with participant age?

H2: It is hypothesized that levels of talking and texting with parents will have an inverse relationship with age – such that as participants' age, amounts of talking and texting will decrease.

FINDING: Communication with parents was examined by number of phone calls made, phone call duration, and number of texts. Overall, this hypothesis was largely found to be insignificant. There was no association between participants talking with their parents via phone calls and age (be it the sheer number of calls students made or the duration of time spent on those calls). However, there was a significant inverse bivariate correlation between 'Texting with Mom' and participant age – such that increased participant age was associated with decreased amounts of texting with mom ($r = -.094$, $p < .05$). This relationship may be highlighting the growing tendency of younger individuals to utilize text-based communication; however, it is interesting that this trend was not found for 'Texting with Dad' (r = -.079, p = .091). Additionally, it is important to note that these trends were maintained when controlling for gender and age in regression analyses, $b = -6.18$, $t(425) = -2.17$, p < .05.

H3: It is hypothesized that levels of individuation will have a positive relationship with age – such that as participants' age, amounts of individuation will increase.

FINDING: As hypothesized, increased age was associated with more developed, healthy levels of individuation ($r = -.091$, $p < .05$). It is noteworthy to highlight that higher scores on this measure of individuation indicate less developed, or maladaptive, levels of individuation. Therefore, the negative correlation here reveals that increased age is associated with decreased maladaptive individuation. These findings were maintained when gender was added as a control variable, $b = -.449$, $t(425) = -2.04$, p < .05.

Q3: In what way is individuation in emerging adulthood related to communication with parents?

H4: It is hypothesized that increased levels of talking and texting via cell phones with parents will be associated with decreased amounts of healthy individuation.

FINDING: Overall individuation was not associated with any communication variables. However, specific individuation sub-scores were associated with two parent communication variables. In accordance with the direction of the general hypothesis, increased separation anxiety was associated with increased texting with parents ($r = .128$, $p < .01$), and maintained significance when controlling for gender and age, $b = 2.94$, $t(425) = 2.52$, p < .01. Meaning that those who demonstrate more maladaptive individuation patterns, specific to separation anxiety, reported greater amounts of texting with their parents. Maladaptive individuation, specific to rejection expectancy, was associated with decreased number of calls with parents ($r = -.132$, $p < .01$), and maintained significance in regression analyses controlling for gender and age, $b = -.326$, $t(425) = -2.69$, p < .01. Overall, both separation anxiety and rejection expectancy were significant predictors of texting and calling, respectively.

Q4: Does attachment have a moderating effect on the relationship between cell phone usage and individuation?

H5: It is hypothesized that attachment will have a moderating effect on cell phone use with parents and individuation – such that at high levels of attachment, the main effect of cell phone usage onto individuation will be lowered or non-significant. Conversely, at low levels of attachment, the main effect will also be lowered or non-significant.

FINDING: In order to test whether the relationship between individuation and cell phone calls with parents was contingent upon levels of parental attachment, the Hayes (2013)

method was used for statistical sophistication, simplicity, and error reduction. Using this detailed syntax of macros allowed moderational effects to be tested by performing a series of regression analyses, followed by variable interaction and conditional slope analyses. Because a significant interaction between the anticipated moderator and the independent variable occurred, a moderational relationship was indicated (Baron & Kenny, 1986; Holmbeck, 1997). Specifically, the interaction between individuation and attachment explained a significant increase in the variance in amount of phone calls made with parents, $\Delta R^2 = .0437$, $F(3, 420) = 6.40$, $p < .001$. Therefore, as hypothesized, attachment did have a moderating effect on cell phone usage and individuation levels. However, variance effect sizes here may be negligible due to the overall insignificant direct effect relationships between cell phone usage variables and individuation. Although a significant direct effect between the independent (or predictor) and dependent (or outcome) variable is not required to explore moderation, significance of the direct effect pathway may have greatly strengthened these findings.

Following standard procedures (Aiken & West, 1991; Holmbeck, 2002), probing was conducted by the computation of two new conditional moderators ('High & Low' variables). Computation of high (1 SD above the mean) and low (1 SD below the mean) variables illustrated that this moderation was only significant at low levels of attachment, $SE_b = .08$, $t(424) = 2.09$, $p < .05$. At high levels of attachment, there is no significant relationship between individuation and cell phone use, $SE_b = .09$, $t(424) = -.52$, $p = .60$.

The unstandardized simple slope for parental attachment scores 1 SD above the mean (the 'High' category) was .17, and the unstandardized simple slope for parental attachment scores 1 SD below the mean was -.05 (see Figure 6). Because there was a

significant positive association between individuation and cell phone use at low levels of attachment, this indicates that among individuals with low levels attachment, as levels of maladaptive individuation increase, so do the amount of phone calls made to their parents. Conversely stated, among those with low levels of attachment, individuals who demonstrate less maladaptive individuation patterns tend to call their parents less.

Q5: Does proximal distance (Google mileage) from home have a moderating effect on the relationship between cell phone usage & individuation?

H6: It is hypothesized that proximal distance from home will have a moderating effect on the relationship between cell phone usage and individuation – such that at high levels of Google mileage, any negative relationship between the main effect of cell phone usage and individualization will be lowered or non-significant.

FINDING: Proximal distance from parents did not moderate the relationship between cell phone usage & individuation, $\Delta R^2 = .0005$, $F(1, 419) = .21$, $p = .65$, at neither high levels ($SE_b = .11$, $t(419) = -.99$, $p = .32$), nor low levels ($SE_b = -.05$, $t(419) = -.86$, $p = .39$).

Q6: Does autonomy moderate the relationship between cell phone use and individualization?

H7: It is hypothesized that autonomy will have a moderating effect on the relationship between cell phone usage and individualization – such that at high levels of autonomy, any negative relationship between cell phone usage and individuation will be lowered or non-significant.

FINDING: Autonomy did not moderate the relationship between number of phone calls with parents and individuation, $\Delta R^2 = .02$, $F(3, 420) = 2.41$, $p = .06$. However, autonomy

was shown to moderate the amount of 'texting with dad' and levels of individuation, ΔR^2 = .01, $F(1, 380) = 3.76$, $p < .05$. Interestingly, among those with high levels of autonomy, individuals who demonstrated more maladaptive individuation patterns text their fathers more ($SE_b = .42$, $t(380) = 2.98$ $p <..01$). No relationship was detected at low levels of autonomy ($SE_b = .38$, $t(380) = .58$, $p =.56$).

The unstandardized simple slope for autonomy scores 1 SD above the mean (the 'High' category) was 72.50, and the unstandardized simple slope for autonomy scores 1 SD below the mean was 48.23 (see Figure 7). Because there was a significant positive association between number of texts with dad and individuation at high levels of autonomy, this indicates that among individuals with high levels of autonomy, as maladaptive individuation increases, the amount of texting with dad also increases. Conversely stated, among those with high levels of autonomy, individuals who demonstrate less maladaptive individuation patterns tend to text with their dad less.

Q7: Does cell phone usage mediate the relationship between autonomy and individuation?

H8: It is hypothesized that a full or partial mediation will occur – such that the relationship between autonomy and individuation will be transformed into a more powerful and explanatory model.

FINDING: Preliminary regression analyses demonstrated that the prerequisite requirements for conducting mediation model analysis were not met due to the non-significant regression between cell phone usage and autonomy ($b = -.11$, $t(422) = -1.30$, $p = .19$). Because preliminary requirements were not met, as detailed by Baron & Kenny (1986), this hypothesis could not be tested statistically.

DISCUSSION

 For some individuals, the cell phone can be viewed as a metaphorical umbilical cord; a device that permits physical freedom and exploration from their parents while maintaining a psychological tether. Ideally, this psychological tether via cell phone would be reminiscent of the 'secure base' phenomenon discussed in the literature on parental attachment, in which freedom and exploration are encouraged when children understand that adequate responsiveness and security from parents is still available (Bowlby, 2005). One main question pertaining to the role of this technology is whether it serves as a convenient opportunity to maintain an emotional connection with parents during the individuation process, or whether this continually present source of immediate availability disrupts the individuation process. Previous qualitative research has shown that parents and emerging adults view the cell phone in both aspects – content with the security it can provide, yet frustrated with the possibility for intrusiveness. This study sought to better understand how emerging adult's psychosocial development may be affected by cell phone communication and explore factors that may moderate these effects.

 Overall, this study demonstrated findings that were in support of previous research, and added some meaningful associations regarding cell phone usage and individuation patterns to the literature. Although hypotheses regarding proximal distance from parents were not supported, other findings provided a wealth of additive information. As expected, increased levels of maladaptive individuation was highly associated with poor mental health outcomes in general. Although causal directionality is not implied from these correlational findings, the relationship still supports the literature demonstrating individuation as a key developmental factor in the lives of emerging adults. Further establishing individuation as a normative developmental trend was the finding that as age increased, levels of maladaptive individuation decreased. This simply

indicates that older individuals are more likely to have achieved a healthy level of separation-individuation in relation to their parents. Reviewing these findings in concert with each other supports the literature, which suggests that the building and encouraging of healthy separation-individuation may have developmental implications for emerging adults general psychosocial functioning. To explore the role separation-individuation may have regarding technology, attachment, autonomy, proximal distance from parents, and the amount and type of cell phone communication was examined.

The relationship between emerging adults' age and levels of communication was explored to identity possible developmental trends regarding how Millenials (the current generation of emerging adults) use cell phones to communicate with their parents. While no general relationship between the amount (or duration) of phone calls was established in connection to age, a significant relationship between texting and age emerged. Specifically, this sample of emerging adults demonstrated that as age decreased, amounts of texting with their mothers increased. This relationship may simply be highlighting the growing tendency of younger individuals to utilize texting; however, this trend was not significant with fathers. Thus, establishing the possibility that texting with fathers may not be as normative as texting with mothers.

Evidence of this trend was demonstrated in an analysis examining the moderating effect of autonomy between cell phone communication and individuation. Overall, autonomy did moderate the relationship between number of calls made to parents and individuation; however, autonomy was found to moderate the relationship between texting with dad and individuation. Specifically, analyses demonstrated that among emerging adults with high levels of autonomy, individuals who demonstrate more maladaptive individuation text their fathers more. Because

being autonomous has been shown to be a developmentally predictive factor for individuation

(Joseph P. Allen et al., 1996; Beyers et al., 2003; Kenyon & Koerner, 2009), the case could be

made that individuals who are highly autonomous should demonstrate healthy individuation.

Simply put, one could assume that emerging adults who demonstrate a propensity towards

separateness and a desire to be self-sufficient theoretically should develop a healthy level of

separation-individuation from parents. However, these concepts are not synonymous, and high

levels of autonomy do not necessarily predict healthy separation and individuation.

Referring back to the literature on parent attachment, some individuals who ultimately

develop more avoidant, or unhealthy attachment styles can attempt to be so overly independent

that the ability to maintain a strong emotional connection is lost (M. D. S. Ainsworth et al., 1978;

Gentzler et al., 2011; Grotevant & Cooper, 1986; Smollar & Youniss, 1989). Given what the

literature describes, this newly made association between maladaptive individuation and texting

with fathers may suggest that a subset of individuals use texting as a way to mitigate their high

levels of independence and maladaptive individuation. Although these individuals are highly

independent, their autonomy did not allow individuation to develop in a healthy manner. These

emerging adults are demonstrating increased attempts at communication through texting, in spite

of their maladaptive individuation patterns. If healthier individuation patterns were present,

texting might not be indicated as playing a role. However, it remains the case that texting does

appear to play a significant role between maladaptive individuation and high levels of autonomy.

For most individuals, texting is simply a quick and easy way to communicate. For others, it may

serve as a platform that allows for a safer way to approach social exchanges while maintaining a

degree of emotional aloofness. Similar to an email, texting conversations can be direct, curt, and

may involve less affect. In the overarching goal to maintain emotional closeness while

individuating, texting may not be the best method of communication among individuals who already have maladaptive separation-individuation issues.

A few other interesting findings from this study should be highlighted. Psychological attachment to parents was found to moderate the relationship between individuation and the amount of calls made with parents. Interestingly, this moderation was only significant at low levels of parental attachment. The statistical significance of the low attachment group in concert with the insignificance of the high attachment provides compelling evidence that parental attachment outcomes are a key component in predicting behaviors when examining the developmental process of individuation. These findings suggest that among those with low levels of parental attachment, as maladaptive individuation increases, so do the number of calls made with parents. These emerging adults are essentially making a bad situation worse. Similar to Wachtel's (1997) "cyclical psychodynamics," these individuals are likely perpetuating the situation by continuing to reach out to the very parents in which they are poorly attached. Admittedly, as detailed below, the direction in which these increased calls are being made is unknown. Although the literature generally implies that the emerging adult is attempting to maintain high levels of emotional connectivity during the emotionally challenging time of individuation-separation, it may be the case that the parents are essentially making a bad situation worse by engaging in increased amounts of calling with their child. Irrespective of who is calling whom, limit-setting by either party may be beneficial given the existing attachment structures and separation tendencies already in play.

Also of note, subscales from the individuation measure demonstrated a positive relationship between separation-anxiety and texting parents, and a negative relationship between rejection-expectancy and calling parents. Although these associations from the individuation-

separation subscales provide some insight into the relationship between individuation types and communication tendencies, more explanatory power was derived from the two moderation analyses presented above in respect to high levels of autonomy and low levels of attachment. Overall, this research demonstrated that cell phone technology (both in terms of calling and texting) appears to play a very active role in the lives of emerging adults as they actively seek to individuate themselves from their parents.

It will be important and relevant to continue explorations on how the increase in ease of communication via cell phones (and other mediums) may affect one's ability to undergo the developmental process of individuation. If salient factors that promote or hinder individuation can be identified, strategies for professionals working with college students can be designed to help aid students in meeting this important developmental milestone. Educating parents on the importance of the individuation stage, and what shifting dynamics to expect (e.g., a desire for more autonomy, mixed with a need for emotional connectedness) may also be a key area of intervention.

Limitations and directions for future research

As is common with online research studies, one major limitation surrounds the inclusion of participants who submit erroneous or misleading data for a variety of reasons (e.g., they are in a hurry, primary motivation is to obtain an incentive, distracted by other stimuli in their environment, randomly click through because they are curious about survey's content, etc.). Due to the nature of online data collection, it is frequently not possible to control for these factors; however, the benefits of collecting this data online (e.g., participants who qualified for this study are likely to be technologically savvy enough to complete the requirements, increase recruitment

of participants in various regions, encourage higher participant numbers, etc.) outweighed the disadvantages. Nevertheless, the limitations regarding online recruitment and survey administration are still present. Efforts to minimize the effects of these limitations are detailed in the methods section.

Additionally, although most emerging adults own a cell phone and use Facebook, this inclusion requirement may have restricted individuals who only use one of these technologies from participating. Further, the identity development of those who are not users of technology was not assessed in this study. It may be the case that individuals who choose to not use various modes of social technologies (e.g., cell phones, social networking websites, etc), are inherently different than individuals captured in this study. Also, due to the technology-focused nature of this study, users were assumed to have a degree of familiarity with the functionality of their cell phone and Facebook. Due to the wide variation in mobile phone software, and the ability to gain the requested data in multiple ways, specific directions regarding how to access a phone's call and text logs could not be provided. Rather, individuals were simply directed to visit their phone's log to obtain this information. This was a clear limitation for individuals who may not be familiar with the functionality of their cell phone.

In a similar study exploring cell phone usage in the transition to college (Gray, unpublished manuscript), call and text log data collection was done collaboratively by a member of the research team, and the participant. This data collection method is likely superior to this study's method. In addition to helping any participants who were not sure how to find their phone's call logs, the quality and accuracy of the data collected was likely much more reliable. Although the current study attempted to go beyond the traditional survey style, in which participants are simply asked to estimate their various cell phone behaviors, participants may have felt the task of

reviewing two week's worth of calling & texting data was too daunting. Thus, it is possible that some participants simply estimated their cell phone usage in spite of the directions provided.

It is important to highlight that the findings of this study demonstrated weak effect sizes and unimpressive correlation strengths, in spite of the statistical significances rendered. For example, although two separate models showed that both attachment and autonomy moderated the relationship between cell phone use and individuation, there are likely other more salient factors at play due to the extremely low amount of variance explained. Future research should focus on expanding our knowledge and understanding of what additional factors may affect emerging adult's cell phone use and individuation patterns. Two specific considerations are discussed below: communication directionality & cell phone ownership.

For example, experiencing one's cell phone as a source of available support versus an intrusion is likely related to who initiates the communication. Knowing that parents are readily available by cell phone may provide emerging adults a tangible, secure base object. However, this may only be the case when the control is in the hands of the child. If the amount of 'incoming' attempts at communication from parents outweighs the amount of 'outgoing' attempts at communications to the parents, the cell phone may be construed as a source of intrusion. Future research should consider examining the directionality of incoming and outgoing communication as a possible factor in the hindering of individuation.

Finally, in consideration of the young woman to whom this specific study ultimately was dedicated, it may be of special relevance to consider the actual ownership of an individual's cell phone, and any implied 'familial strings' which may accompany being on a family cell phone plan. Although most emerging adults will report that they own a cell phone, further investigation

may reveal that they are *provided* a cell phone by their parents. If future research demonstrates negative associations for emerging adults on "Share Everything" family plans, well meaning parents may be negating healthy individuation by insisting their children remain on their cell phone contracts. Although emerging adults likely require a degree of financial support from their parents, they concurrently require a degree of autonomy, privacy, and emotional support.

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Appendix C: Tables and Figures

Table 2. Means and Standard Deviations for Cell Phone Usage with Parents

	Mean	Std. Deviation
Call Duration w/ Parents	22.56	26.60
Number of Texts w/ Parents	85.10	233.05
Number of Calls w/ Parents	18.47	21.75
Number of Calls w/ Mom	15.96	22.57
Number of Texts w/ Mom	84.36	240.49
Number of Video Chats w/ Mom	.69	6.46
Number of Calls w/ Dad	6.44	9.66
Number of Texts w/ Dad	25.88	109.82
Number of Video Chats w/ Dad	.24	1.48
Call Duration w/ Mom	17.49	18.09
Call Duration w/ Dad	12.18	12.27

Table 3

Study 2 Correlations Among Major Hypotheses Study Variables

|	Age	SITA Individuation	SITA Engulfment Anxiety	SITA Separation-Anxiety	SITA Rejection-Expectancy
Age	-	-.091*	-.146**	-.600	.032
Call Duration w/ Parents	-.001	.078	.077	.073	.046
Texts w/ Parents	-.100*	.051	-.013	.128**	-.016
Calls w/ Parents	-.058	-.055	.011	.000	-.132**
Calls w/ Mom	.001	-.006	.027	.030	-.040
Calls w/ Dad	-.004	.-004	.019	.042	-.063
Call Duration w/ Mom	-.003	.080	.109*	.054	.029
Call Duration w/ Dad	.022	.066	.024	.082	.073
Texts w/ Mom	-.094*	.043	-.014	.113*	-.012
Texts w/ Dad	-.079	.066	.007	.132*	.080
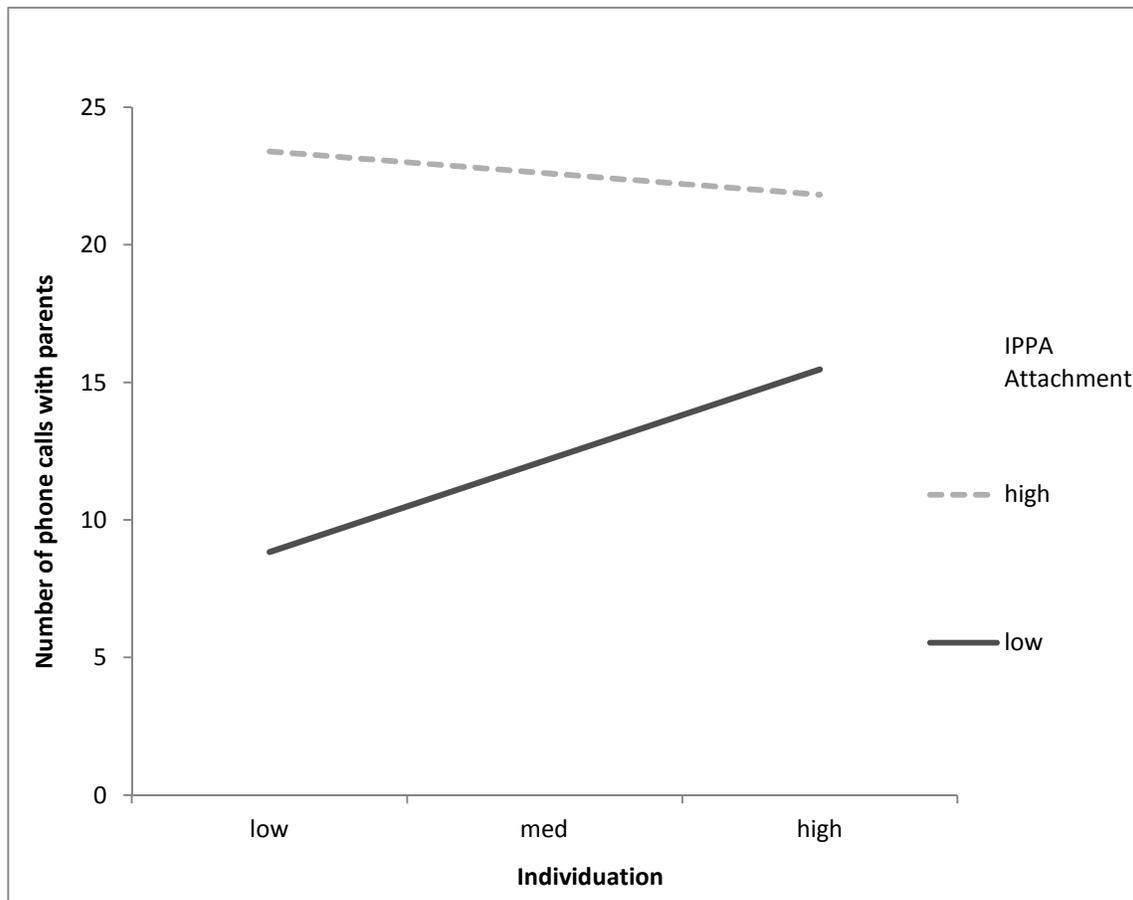
Figure 6. Low levels of attachment moderates relationship between individuation and phone calls with parents *(SE$_b$ = .08, t*(424) = 2.09, *p* < .05). No significant relationship detected at high levels *(SE$_b$ = .09, t*(424) = -.52, *p* =.60).
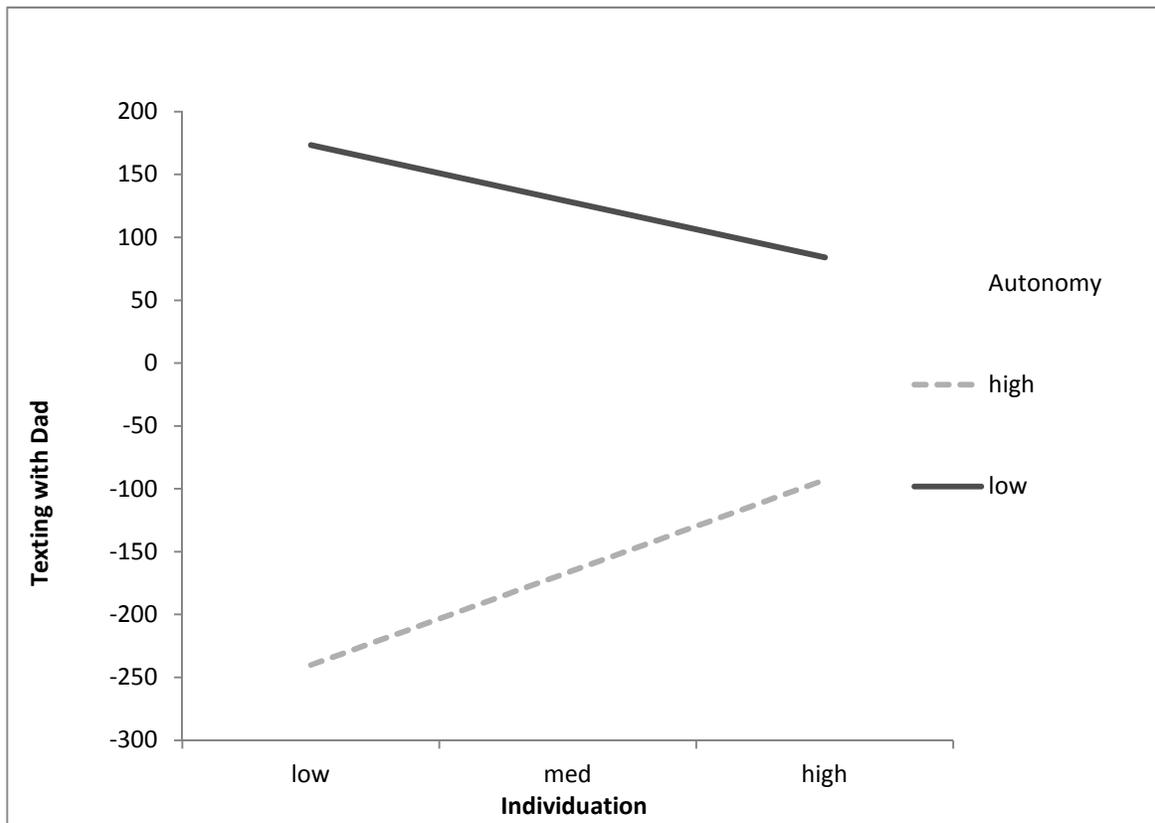
Figure 7. High levels of autonomy moderate relationship between Texting with Dad and

Individuation (SE_b = .42, $t(380)$ = 2.98 p <.01). No relationship was detected at low levels of

autonomy (SE_b = .38, $t(380)$ = .58, p =.56).

Appendix D: Measures

HLCS

Leaving home, or separating from parents, and becoming an adult means different things to different people. Below are issues related to home leaving and becoming an adult. Please check the box that corresponds to the degree to which the statement reflects your **current** situation.

Does not apply to me at all			Somewhat applies applies to me			Applies to me very much
1	2	3	4	5	6	7

1. I feel like an adult.

2. I am independent.

3. I have a job.

4. I no longer receive financial support from my family.

5. I have to take care of myself (e.g. cook, laundry, etc.).

6. I make my own money.

7. I go back home each summer.

8. I have moved into an apartment.

9. I do not go home as often.

10. I feel mature enough.

11. I have to do things for myself.

12. I am financially independent.

13. I make my own decisions.

Cell Phone Questionnaire

Open your call /text log on your cell phone to use for this next section

1. Do you use your cell phone to communicate with your Mother?
   a. Yes
   b. No
   c. N/A
2. Do you use your cell phone to communicate with your Father?
   a. Yes
   b. No
   c. N/A

3. Phone usage

   In the last TWO WEEKS, enter up the number of times you communicated with MOM by:

   A. PHONE calls (total # of sent and received calls)
   B. TEXT messages (total # of sent and received texts)
   C. VIDEO chat (total times connected)

4. Phone usage

   In the last TWO WEEKS, enter up the number of times you communicated with DAD by:

   D. PHONE calls (total # of sent and received calls)
   E. TEXT messages (total # of sent and received texts)
   F. VIDEO chat (total times connected)

5. Who initiates the communication?

   In that last two weeks, who initiated more conversations between you and your MOM?

   A. I did
   B. She did
   C. About the same

   In that last two weeks, who initiated more conversations between you and your DAD?

   A. I did
   B. He did
   C. About the same

<u>SITA: Separation-Individuation Test of Adolescence</u>

Listed below are a number of statements which describe various feelings, attitudes, and behaviors that people have about their relationships with others. Read each statement and then check the box that corresponds to the letter that best reflects the extent to which:

> A = the statement is *always true* for you or you *strongly agree* with it
> B = if the statement is *usually true* for you or you *generally agree* with it
> C = if the statement is *sometimes true* for you or you *slightly agree* with it
> D = if the statement is *hardly ever true* for you or you *generally disagree* with it
> E = if the statement is *never true* for you or you *strongly disagree* with it

1. Sometimes my parents are so overprotective I feel smothered.

2. I can't wait for the day I can live on my own and am free from my parents.

3. Most parents are overcontrolling and don't really want their children to grow up.

4. I often feel rebellious toward things my parents tell me to do.

5. My parents keep close tabs on my whereabouts.

6. I feel my parents' roles restrict my freedom too much.

7. I am greatly looking forward to getting out from under the rule of my parents.

8. Sometimes it seems that people really want to hurt me.

9. If I told someone about the troubles I have, they would probably not understand.

10. My parents seem much more concerned about their own plans than they do about mine.

11. Even with my good friends I couldn't count on them to be there if I really needed them.

12. My parents seem very uninterested in what's going on with me.

13. It sometimes seems that my parents wish they hadn't ever had me.

14. It's hard for me to really trust anyone.

15. No one seems to understand me.

16. If I let myself get close to someone else I would probably get burned.

17. Sometimes it seems my parents really hate me.

(SITA Continued…)

18. As long as I don't depend anyone, I can't get hurt.

19. At home, I seem to be "in the way" a lot.

20. Being alone is a very scary idea for me.

21. I often don't understand what people want out of a close relationship with me.

22. I worry about death a lot.

23. Sometimes I think how nice it was to be a young child when someone else took care of my needs.

24. I frequently worry about being rejected by my friends.

25. I frequently worry about breaking up with my boyfriend/girlfriend.

26. I am quite worried that there might be a nuclear war in the next decade that would destroy much of this world.

27. The teacher's opinion of me as a person is very important to me.

28. I feel overpowered or controlled by people around me.

29. When I think of the people that are most important to me I wish I could be with them more and be closer to them emotionally.

30. Before I go to sleep at night, I sometimes feel lonely and wish there were someone around to talk to or just to be with.

31. The idea of going to a large party where I would not know anyone is a scary one for me.

32. I worry about being disapproved of by my teachers.

33. I would get upset if I found out my teacher was mad at me or disappointed in me.

The Demographic Information Form

Please tell us about yourself.

2. Gender
- o   Male

- o   Female

8. Age _____

9. How would you describe your ethnic background? (check all that apply)

- o   Asian American
- o   Black/African American
- o   Hawaiian or Pacific Islander
- o   Hispanic/Latino
- o   Middle Eastern
- o   Native American
- o   White/Caucasian
- o   Mixed Race _____

10. Current YEAR in school:
Select "N/A" if you are not a college student

- o   Freshman
- o   Sophomore
- o   Junior
- o   Senior
- o   Graduate / Professional Student
- o   N/A

11. What was your GPA last semester?
12. Where do you currently live (City, State)?
13. Where do your parents live (City, State)?

The Inventory of Peer and Parent Attachment

Some of the following statements ask about your feelings about your parents. Please read each statement and indicate which number that tells how true the statement is for you now.

1 = Almost never or Never True   3 = Neutral   5 = Almost always or Always True

1. My parent(s) respects my feelings

2. I feel my parent(s) does a good job as a parent(s)

3. I wish I had a different parent(s)

4. My parent(s) accepts me as I am

5. I like to get my parent's point of view on things
   I'm concerned about

6. I feel it's no use letting my feelings show around
   my parent(s)

7. My parent(s) can tell when I'm upset about something

8. Talking over my problems with my parent(s) makes
   me feel ashamed or foolish

9. My parent(s) expects too much from me

10. I get upset easily around my parent(s)

11. I get upset a lot more than my parent(s) knows

12. When we discuss things, my parent(s) cares about my
    point of view

13. My parent(s) trusts my judgment

14. My parent(s) has their own problems, so I don't bother
    with mine

15. My parent(s) helps me to understand my self better

16. I tell my parent(s) about my problems and troubles

17. I feel angry with my parent(s)

18. I don't get much attention from my parent(s)

(The IPPA Continued…)

19. My parent(s) helps me talk about my difficulties

20. My parent(s) understands me

21. When I am angry about something, my parent(s)

    tries to be understanding

22. I trust my parent(s)

23. My parent(s) doesn't understand what

    I'm going through these days

24. I can count on my parent(s) when I need to

    get something off my chest

25. If my parent(s) knows something is bothering me,

    they asks me about it

Symptom Checklist-90-Revised

Below is a list of problems people sometimes have. Please read each one carefully, and select the option that best describes how much that problem has DISTRESSED or BOTHERED you during the past 7 days, including today.

Indicate your response from 0 (Not at all) to 4 (Extremely)

1. Headaches

2. Nervousness or shakiness inside

3. Repeated unpleasant thoughts that won't leave your mind

4. Faintness or dizziness

5. Loss of sexual interest or pleasure

6. Feeling critical of others

7. The idea that someone else can control your thoughts

8. Feeling others are to blame for most your troubles

9. Trouble remembering things

10. Worried about sloppiness or carelessness

11. Feeling easily annoyed or irritated

12. Pains in heart or chest

13. Feeling afraid in open spaces or on the streets

14. Feeling low in energy or slowed down

15. Thoughts of ending your life

16. Hearing voices that other people do not hear

17. Trembling

18. Feeling that most people cannot be trusted

19. Poor appetite

20. Crying easily

21. Feeling shy or uneasy with the opposite sex

22. Feelings of being trapped or caught

23. Suddenly scared for no reason

24. Temper outbursts that you could not control

(SCL Continued…)

25. Feeling afraid to go out of your house alone

26. Blaming yourself for things

27. Pains in lower back

28. Feeling blocked in getting things done

29. Feeling lonely

30. Feeling blue

31. Worrying too much about things

32. Feeling no interest in things

33. Feeling fearful

34. Your feelings being easily hurt

35. Other people being aware of your private thoughts

36. Feeling others do not understand you or are unsympathetic

37. Feeling that people are unfriendly or dislike you

38. Having to do things very slowly to insure correctness

39. Heart pounding or racing

40. Nausea or upset stomach

41. Feeling inferior to others

42. Soreness of your muscles

43. Feeling that you are watched or talked about by others

44. Trouble falling asleep

45. Having to check and double-check what you do

46. Difficulty making decisions

47. Feeling afraid to travel on buses, subways, or trains

48. Trouble getting your breath

49. Hot or cold spells

50. Having to avoid certain things, places, or activities
    because they frighten you

51. Your mind going blank

52. Numbness or tingling in parts of your body

53. A lump in your throat

(SCL Continued…)

54. Feeling hopeless about the future

55. Trouble concentrating

56. Feeling weak in parts of your body

57. Feeling tense or keyed up

58. Heavy feelings in your arms or legs

59. Thoughts of death or dying

60. Overeating

61. Feeling uneasy when people are watching
    or talking about you

62. Having thoughts that are not your own

63. Having urges to beat, injure, or harm someone

64. Awakening in the early morning

65. Having to repeat the same actions such as
    touching, counting, or washing

66. Sleep that is restless or disturbed

67. Having urges to break or smash things

68. Having ideas or beliefs that others do not share

69. Feeling very self-conscious with others

70. Feeling uneasy in crowds, such as shopping or at a movie

71. Feeling everything is an effort

72. Spells of terror or panic

73. Feeling uncomfortable about eating or drinking in public

74. Getting info frequent arguments

75. Feeling nervous when you are left alone

76. Others not giving you proper credit for your
    achievements

77. Feeling lonely even when you are with people

78. Feeling so restless you couldn't even sit still

79. Feelings of worthlessness

(SCL Continued…)

80. The feeling that something bad is going to happen to you

81. Shouting or throwing things

82. Feeling afraid you will faint in public

83. Feeling that people will take advantage of you if you let them

84. Having thoughts about sex that bother you a lot

85. The idea that you should be punished for your sins

86. Thoughts and images of a frightening nature

87. The idea that something serious is wrong with your body

88. Never feeling close to another person

89. Feelings of guilt

90. The idea that something is wrong with your mind

CLOSING

GENERAL DISCUSSION

The overwhelming integration of technology into the lives of emerging adults has demanded the attention of social researchers, and continues to especially demand the attention of developmental researchers. As quickly as technology changes, so do the ways in which it may affect the psychosocial development of the consumers of that technology. Various reviews and impact research has demonstrated that technology can have a tremendous effect on individuals. In three distinct, yet interrelated projects, this dissertation has provided a thorough examination the way in which technology can interact with the two main developmental tasks of emerging adulthood: identity development and individuation (Arnett, 2007; Erikson, 1968; Koepke & Denissen, 2012; Tanner, 2006).

Previous research has shown that the initial development of a healthy, secure attachment was found to be positively related to both identity development and individuation (Ainsworth, Blehar, Waters, & Wall, 1978; Årseth, Kroger, Martinussen, & Marcia, 2009; Bowlby, 1988; Kenny, 1987; Lopez & Gover, 1993). Psychological constructs such as agency and autonomy have been shown to promote individuation and identity development (Côté & Levine, 2002; Schwartz, Côté, & Arnett, 2005). And finally, the literature has established individuation as highly related to identity development in a predictive fashion (Beyers & Goossens, 2008; Cote & Schwartz, 2002; Koepke & Denissen, 2012; K. Luyckx, Goossens, Soenens, & Beyers, 2006; Koen Luyckx, Soenens, Vansteenkiste, Goossens, & Berzonsky, 2007; Schwartz et al., 2005). Although no singular developmental path is indicated for healthy outcomes, the literature and findings from this study provide a map for navigating through the developmental tasks of emerging adulthood. From the high percentage of emerging adults in this study who remain in non-achieved identity statuses their senior year, and the literature demonstrating that many

foundational psychological constructs feed into identity development, it could be suggested that identity development may be the final developmental task before one enters young adulthood. Given that logic and the integration of the literature on developmental psychosocial tasks, one successful developmental trajectory may resemble the following: 1) Establish a secure parental attachment. 2) Build agency and autonomy by utilizing a secure base. 3) Using these autonomous traits in concert with emotional connectivity established from secure parental attachment, develop a healthy level of separation and individuation from parents. 4) Take time engaging in identity exploration until complete identity achievement has been resolved. Needless to say, psychosocial lifespan development is far more complex and varied than what can be captured in four basic steps. Despite researchers and clinicians best efforts, developmental trajectories will never present themselves in such a clear, simplistic fashion. As existing research and the integrated results of this dissertation suggests, early maladaptive pathologies affect later development, people utilize & are affected differently by various environmental factors (e.g., social technologies), there are numerous routes that can lead to the same developmental goal, and few things ever go perfectly according to plan.

Overall, emerging adulthood has established itself as another independent period of transition between life's stages, continuing to require a degree of dependency (Côté, 2006). The tendency for emerging adults to remain in a continued state of identity moratorium for extended periods (Côté, 2006) likely increases their dependency needs, thus decreasing their ability to show healthy levels of separation-individuation. This cross-over between identity development and individuation unfortunately may aggravate normative attempts at one developmental task, if the other lags behind. For example, an individual who wants to take a year off during college to study abroad, or join the PeaceCorp, may be in a healthy identity stage of moratorium. However,

this extended period of identity development comes at the cost of placing more adult tasks on temporary hiatus. For some emerging adults, this extended delaying of adult responsibilities in many ways maintains psychological and practical dependencies on parents. Understandably, this dynamic can create confusion regarding the evolving relationship between parents and their emerging adults. Establishing a coherent and solidified identity was especially problematic for emerging adults who experienced their parents as intrusive and controlling (Koen Luyckx, Schwartz, Goossens, Beyers, & Missotten, 2011)– again reinforcing the need for autonomy among a group who inherently or pragmatically cannot be fully autonomous until they finally 'emerge' from the emerging adulthood stage, and reach young adulthood.

The integrated literature review, and both empirical studies presented in this dissertation demonstrate that technology can interact with development in meaningful ways. Although the results were not found as hypothesized, the primary finding from Study 1 was that profile picture cycling was more so indicative of showing the world who you already know yourself to be, rather than using the medium to figure out who you are. The primary finding from Study 2 was that emerging adults who demonstrated maladaptive separation-individuation, as a function of attachment structures or autonomy, generally stay connected to parents in unhealthy ways. Although the findings were quite bleak, maladaptive individuation was shown to decrease with age; thus, some emerging adults may simply 'find their way' with time. Overall, both studies suggest that who we are outside of our technology usage can be projected onto our technology usage. Due to the weak effect sizes of the findings, absolute inferences cannot be made about the ways in which technology can affect emerging adults' psychosocial development. However, this project does provide a novel glimpse into the ways these particular constructs may interact, adding to the foundational research being conducted on technology and emerging adults. As our

culture increasingly integrates social technologies into daily life, it will be important for research to examine the effects of these technologies by expounding on and clarifying the ways in which technology may impact human development.

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VITA

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